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Microtonal Modes and Scales from the Middle East and Central Asia

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Microtonal Modes and Scales in the Middle East and Central Asia

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Overview

Although 90 percent of Central Asia speaks a form of a Turkic language, and 10 percent speaks a form of the Persian language, there is still a greater ethnic diversity and variety in their music (Central Asia Overview, Levin, p. 895).

This paper is about microtonal modes and scales in use and their origins from other countries and cultures: Arabic, Iranian, Turkish, and Azerbaijani. As Levin remarked, "Central Asia suggests an area with imprecise borders…," (loc. cit.) which happens to be true, since the bulk of the region was carved out by Russia, and eventually, the Soviet Union. [This paper, however, will not take the Soviet Union into account, as it has no bearing on microtonality, or the maqamat in general.]

In Central Asia the maqam is the classical music lingua franca and is called in Bukhara Shash Maqam and has many of the key elements, since it was brought by Abdulqadir al-Maraghi in the 15th century, from Azerbaijan. The tradition of the Maqam extends from the Muslim world and from countries such as those listed above, Saudi Arabia, in particular.

Instruments such as the dutar and tar are also found throughout the region in various guises and forms and have a particular tuning capability of intoning the neutral thirds and other microtonal pitches representative of the music at large (Music of Central

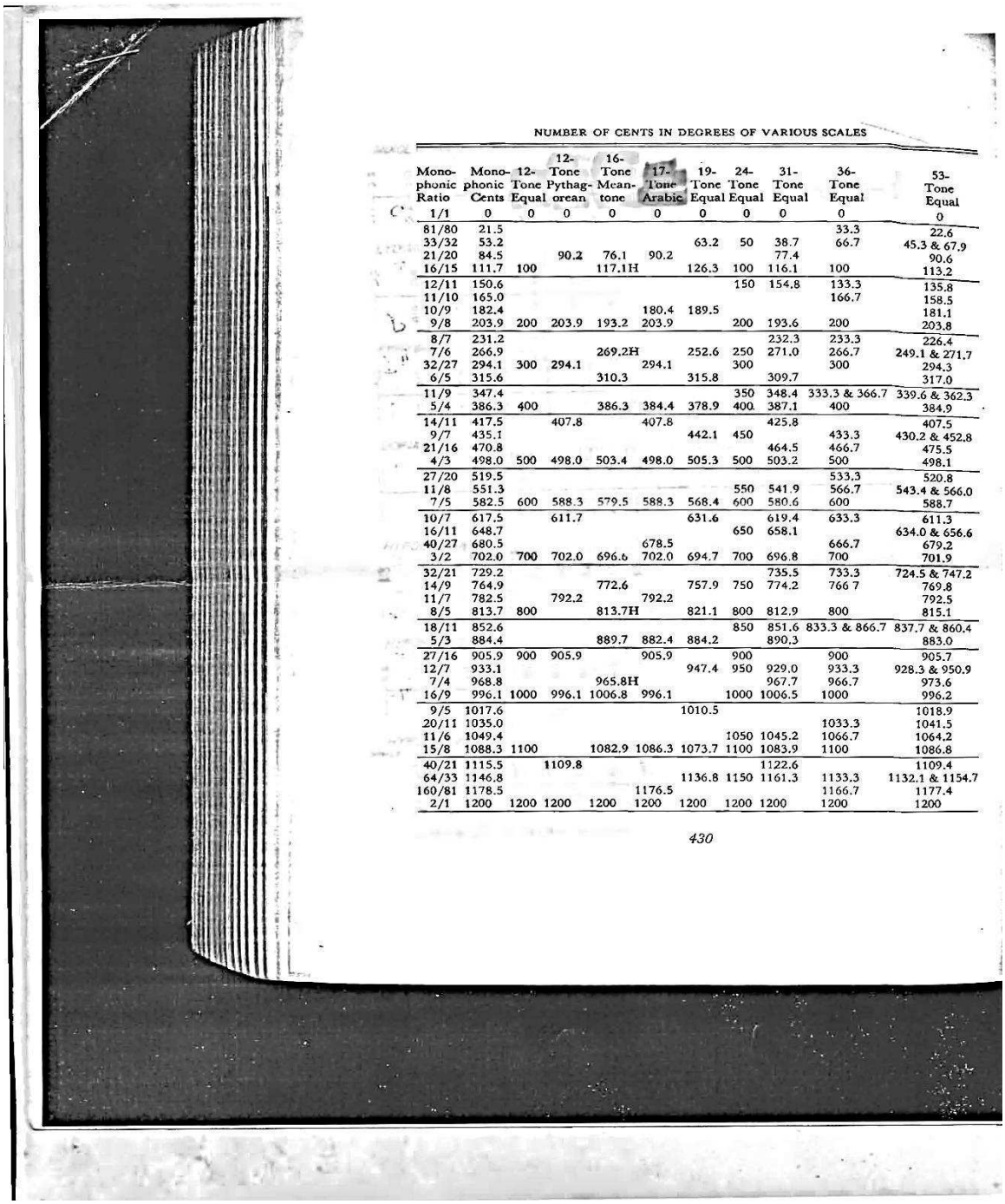
Asia Vol.2, p. 13). In fact, much of the fingerboards of these instruments are needed as an anchor in the ear-training of young maqam musicians in their perpetual efforts at keeping this highly unique music alive, which features scales of up to nineteen tones to the octave (Levin, p. 900).

Kyrgyz musicians hold that "the Kuu is also a root for the word for tuning, suggesting the power of different musical tunings to affect the soul and the psyche," and in addition to this notion, maqam also feature modes that affect human emotion and are classified by emotive type corresponding to various microtonal intervals and tones. (Music of Central Asia, Vol. 1, p. 13)

In working backwards, a look at the Arabic/Persian beginning of the maqam is the most obvious starting point, as it offers the most fundamental aspects of the mechanics of the maqam and its constituent parts.

Arab/Persian Modal Theory in 1250 to 1300 AD

O. Wright, from his 1978 Oxford treatise The Modal System of Arab and Persian Music from 1250 to 1300 AD discusses Systematist theory as espoused by Safi al-Din, in 1250 Iraq, which happens to have been born out of a fusion of cultures: Arabic, Persian Sassanid, and Greek. (Wright, p. 20) The Systematist scale and its origins came about via Pythagorean tuning by Arabic music theorist al-Kindi in the Middle Ages. Pythagorean tuning has remained a staple of Arabic and Persian modal theory since then. (Miller, p. 23) This graph is from A Genesis of a Music, by Harry Partch, and it shows in great detail the differences between Pythagorean and Arabic and many other tuning standards.



NUMBER OF CENTS IN DEGREES OF VARIOUS SCALES

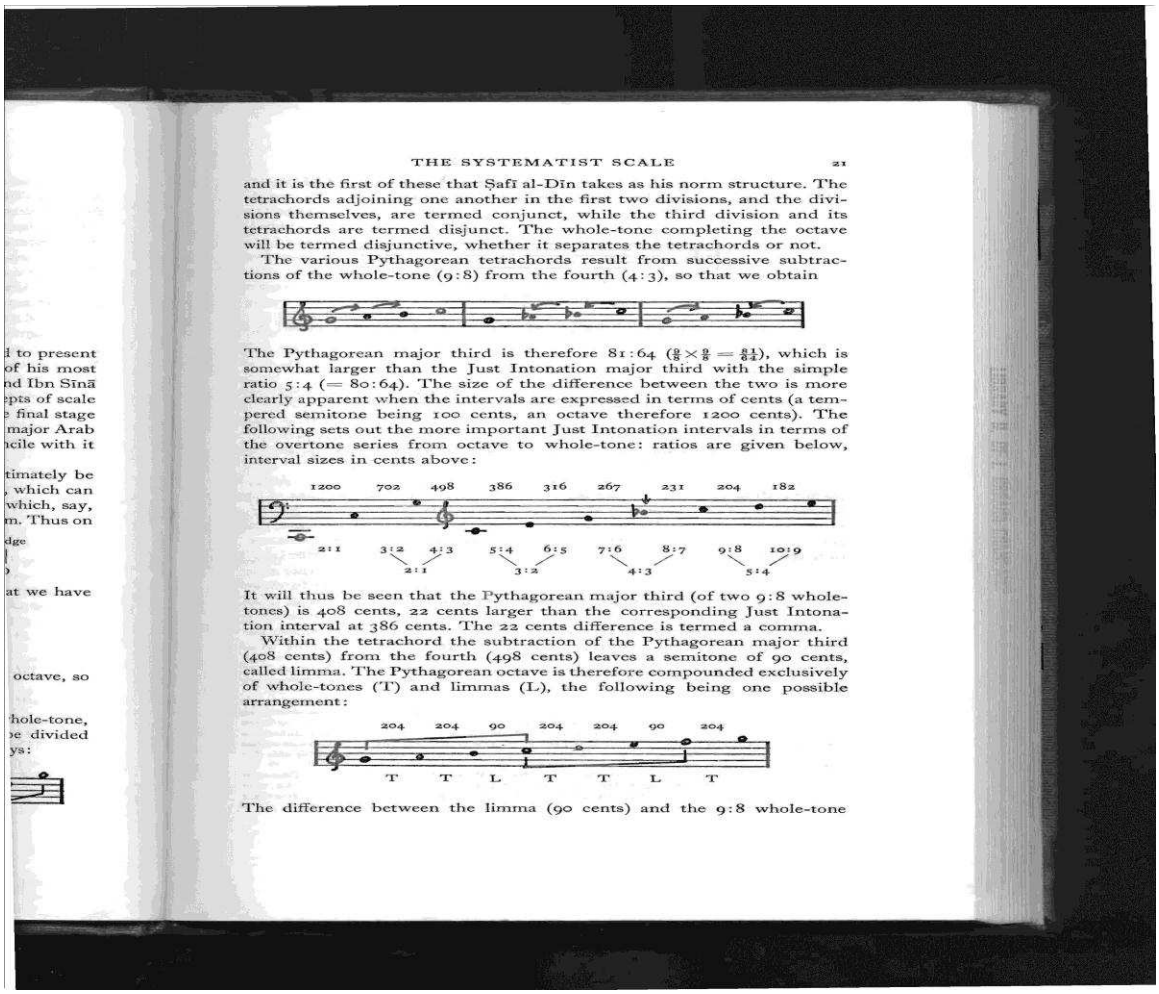
Mono-phonic Ratio	Mono-phonic Cents	12-Tone Equal	12-Tone Pythag-orean	16-Tone Mean-tone	17-Tone Arabic	19-Tone Equal	24-Tone Equal	31-Tone Equal	36-Tone Equal	53-Tone Equal
1/1	0	0	0	0	0	0	0	0	0	0
81/80	21.5								33.3	22.6
33/32	53.2					63.2	50	38.7	66.7	45.3 & 67.9
21/20	84.5		90.2	76.1	90.2			77.4		90.6
16/15	111.7	100		117.1H		126.3	100	116.1	100	113.2
12/11	150.6						150	154.8	133.3	135.8
11/10	165.0								166.7	158.5
10/9	182.4				180.4	189.5				181.1
9/8	203.9	200	203.9	193.2	203.9		200	193.6	200	203.8
8/7	231.2							232.3	233.3	226.4
7/6	266.9			269.2H		252.6	250	271.0	266.7	249.1 & 271.7
32/27	294.1	300	294.1		294.1		300		300	294.3
6/5	315.6			310.3		315.8		309.7		317.0
11/9	347.4						350	348.4	333.3 & 366.7	339.6 & 362.3
5/4	386.3	400		386.3	384.4	378.9	400	387.1	400	384.9
14/11	417.5		407.8		407.8			425.8		407.5
9/7	435.1					442.1	450		433.3	430.2 & 452.8
21/16	470.8							464.5	466.7	475.5
4/3	498.0	500	498.0	503.4	498.0	505.3	500	503.2	500	498.1
27/20	519.5								533.3	520.8
11/8	551.3						550	541.9	566.7	543.4 & 566.0
7/5	582.5	600	588.3	579.5	588.3	568.4	600	580.6	600	588.7
10/7	617.5		611.7			631.6		619.4	633.3	611.3
16/11	648.7						650	658.1		634.0 & 656.6
40/27	680.5				678.5				666.7	679.2
3/2	702.0	700	702.0	696.6	702.0	694.7	700	696.8	700	701.9
32/21	729.2							735.5	733.3	724.5 & 747.2
14/9	764.9			772.6		757.9	750	774.2	766 7	769.8
11/7	782.5		792.2		792.2					792.5
8/5	813.7	800		813.7H		821.1	800	812.9	800	815.1
18/11	852.6						850	851.6	833.3 & 866.7	837.7 & 860.4
5/3	884.4			889.7	882.4	884.2		890.3		883.0
27/16	905.9	900	905.9		905.9		900		900	905.7
12/7	933.1					947.4	950	929.0	933.3	928.3 & 950.9
7/4	968.8			965.8H				967.7	966.7	973.6
16/9	996.1	1000	996.1	1006.8	996.1		1000	1006.5	1000	996.2
9/5	1017.6					1010.5				1018.9
20/11	1035.0								1033.3	1041.5
11/6	1049.4						1050	1045.2	1066.7	1064.2
15/8	1088.3	1100		1082.9	1086.3	1073.7	1100	1083.9	1100	1086.8
40/21	1115.5		1109.8					1122.6		1109.4
64/33	1146.8					1136.8	1150	1161.3	1133.3	1132.1 & 1154.7
160/81	1178.5				1176.5				1166.7	1177.4
2/1	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200

430

Partch, Harry A Genesis of a Music. P. 430.

If the column of Pythagorean tuning is compared to the Arabic column, the only discrepancy found is at the interval of the third, which is a Just third in the Arabic column (Partch, p. 430).

Pythagorean tuning is a particular tuning by fifths that comes from a physical string noded at various points for its initial simple ratios, much like Just intonation, and when extended, breaks out of perfect fifths from which equal temperament depends. The



THE SYSTEMATIST SCALE 21

and it is the first of these that Ṣafī al-Dīn takes as his norm structure. The tetrachords adjoining one another in the first two divisions, and the divisions themselves, are termed conjunct, while the third division and its tetrachords are termed disjunct. The whole-tone completing the octave will be termed disjunctive, whether it separates the tetrachords or not.

The various Pythagorean tetrachords result from successive subtractions of the whole-tone (9:8) from the fourth (4:3), so that we obtain

The Pythagorean major third is therefore 81:64 ($\frac{9}{8}\times\frac{9}{8}=\frac{81}{64}$), which is somewhat larger than the Just Intonation major third with the simple ratio 5:4 (= 80:64). The size of the difference between the two is more clearly apparent when the intervals are expressed in terms of cents (a tempered semitone being 100 cents, an octave therefore 1200 cents). The following sets out the more important Just Intonation intervals in terms of the overtone series from octave to whole-tone: ratios are given below, interval sizes in cents above:

1200 702 498 386 316 267 231 204 182

2:1 3:2 4:3 5:4 6:5 7:6 8:7 9:8 10:9

It will thus be seen that the Pythagorean major third (of two 9:8 whole-tones) is 408 cents, 22 cents larger than the corresponding Just Intonation interval at 386 cents. The 22 cents difference is termed a comma.

Within the tetrachord the subtraction of the Pythagorean major third (408 cents) from the fourth (498 cents) leaves a semitone of 90 cents, called limma. The Pythagorean octave is therefore compounded exclusively of whole-tones (T) and limmas (L), the following being one possible arrangement:

204 204 90 204 204 90 204

T T L T T L T

The difference between the limma (90 cents) and the 9:8 whole-tone

table above shows the intervals from Just intonation, in cents, along with Pythagorean tuning, particularly at the scalar third, 408 cents. The subtraction of the Just third leaves an interval of 22 cents, called a comma, from Greek theory. (Wright, p. 21) When a Pythagorean third is subtracted from a Just 4th, an interval of 90 cents, called a limma, is created. Between limmas and commas, other intervals can be created, namely the apotome, at 114 cents. The Systematist scale is therefore a collection of theoretical,

and practical, limmas and commas alternating, except that this is not exactly what Arabic modes actually sound like. (Wright, p. 22)

Safi al-Din's treatise Kitab al-Adwar was the first theoretical treatise to look at Arab modes and tried to codify the system into one coherent whole, even if it was accurate only on paper. Safi al-Din's seventeen note scale was innovative, however, and had many adherents. In addition to Safi al-Din, there was a follower, named Qutb al-Din who furthered the categorization process started by Safi in 1250. Qutb al-Din's treatise Durrat al-taj contained a great many more scales and modes numbering into the hundreds and his collection is referenced by Wright in the section below, on 84 modes—all created mostly by Safi al-Din, but were all written and borrowed by Wright from Qutb al-Din's Durrat al-taj. (loc cit)

The scale was essentially divided into limmas and commas and had a scheme: from G to g, it began for every whole tone, a limma-limma-comma, or 204 cents; and for the half tones, a minor halftone of 90 cents. Therefore, there were 17 divisions in a limma/comma configurational pattern, as such: LLC, LLC, L, LLC, LLC, L, LCL, thus equaling seventeen tones. (Ibid p. 25) In addition to the subdivisions of smaller tones, the larger structure took the form of tetrachords and pentachords from G to C, and from C to G. In accordance with Pythagorean theory, Safi al-Din began his scale on B natural and at every perfect fourth, he ascended up into the higher tones of the overtone series: B, E, A, D, G, C, F, Bb, Eb, Ab, Db, Gb, B1/4 flat, E ¼ flat, D ¼ flat, G ¼ flat. (Ibid, p. 26) A theoretical mistake made by Safi al-Din came at scale end where musicians were hard pressed to hear or reproduce a comma of 24 cents, except that this seems to be Wright's

assertion, and he may have been biased due to being an Occidental, who was used to the standard 12 tone equal tempered tuning. (Ibid, p 28)

Tanburs and Azerbaijani Tars were the physical instruments used for tuning systems in the actual practice of the seventeen note scale, back in the 13th century, as well as today. The interval of the "neutral" third was resolved to be 350 cents, as it was a tone that did not align with either minor third or Just third intonation, at 384 cents. This is the area where the actual usage of the Systematist scale can be questioned as to its actual use in practical aspects of performance. (Ibid, p. 31)

An example of an actual tetrachordal scale follows: G, Ab, A 1/4flat, A, Bb, B1/4 flat, B, and C, where the intervals in cents are respectively, 90, 56, 60, 90, 56, 58, and 90 cents. Octave scales were comprised of either two tetrachordal scales and one whole tone, or a tetrachord and a pentachord. Wright, himself, in his treatise The Modal System of Arab and Persian Music of 1250-1300 AD offers criticism of the materials he presents, such as the Systematist scale as being unrealistic due to the presence of certain microintervals, however, the scope of this discussion is not interested in that aspect, and a less biased look into this music seems to be a more appropriate endeavor, should one wish to incorporate these tunings into a compositional scheme of original tunings, or talk about them in a Middle Eastern theoretical sense.

Safi al-Din's transcriptions between 72 to 84 modes and scales from the Kitab al adwar initially defined 7 tetrachord and 12 pentachord structures (7 X 12 = 84). Only 17 of these were used regularly. (Ibid, pp. 44) Also, there is a building-block type of approach reminiscent of Schoenberg's "combinatoriality" in the construction of these scales, since they are already comprised of combinations of tetrachords and pentachords.

Wright, furthermore, divides the 72 scales into their intervallic ambitus from minor third trichords to greater than octave scales from the Durrat al-taj.

The zirafkand kuchek tetrachord is built on G and is first of the minor third species. It contains pitches G, A 1/4 flat, Bb, and B 1/4 flat, at 128, 139,and 49 cents per interval, with a total of a 316 cent range, making this a peculiar minor third, as it differs from both a neutral third (350 cents) and a Just third (384 cents). (Ibid, p 47)

A species of major third trichord is the Iraq on G, A ¼ flat, B ¼ flat, with 182 cents in the middle and 386 cents total, making it a Just third. The reader must please keep in mind that all equal tempered intervals are on the hundreds, and that 50 cents is a ¼ tone.

An example of the tetrachord (perfect fourth) species is the ushshaq which happens to be "diatonic" and is on G, A, B, and C, except that its intervallic content is composed of both limmas and 204 cent whole tones. Another tetrachord is the rast on G, A, B ¼ flat, and C.

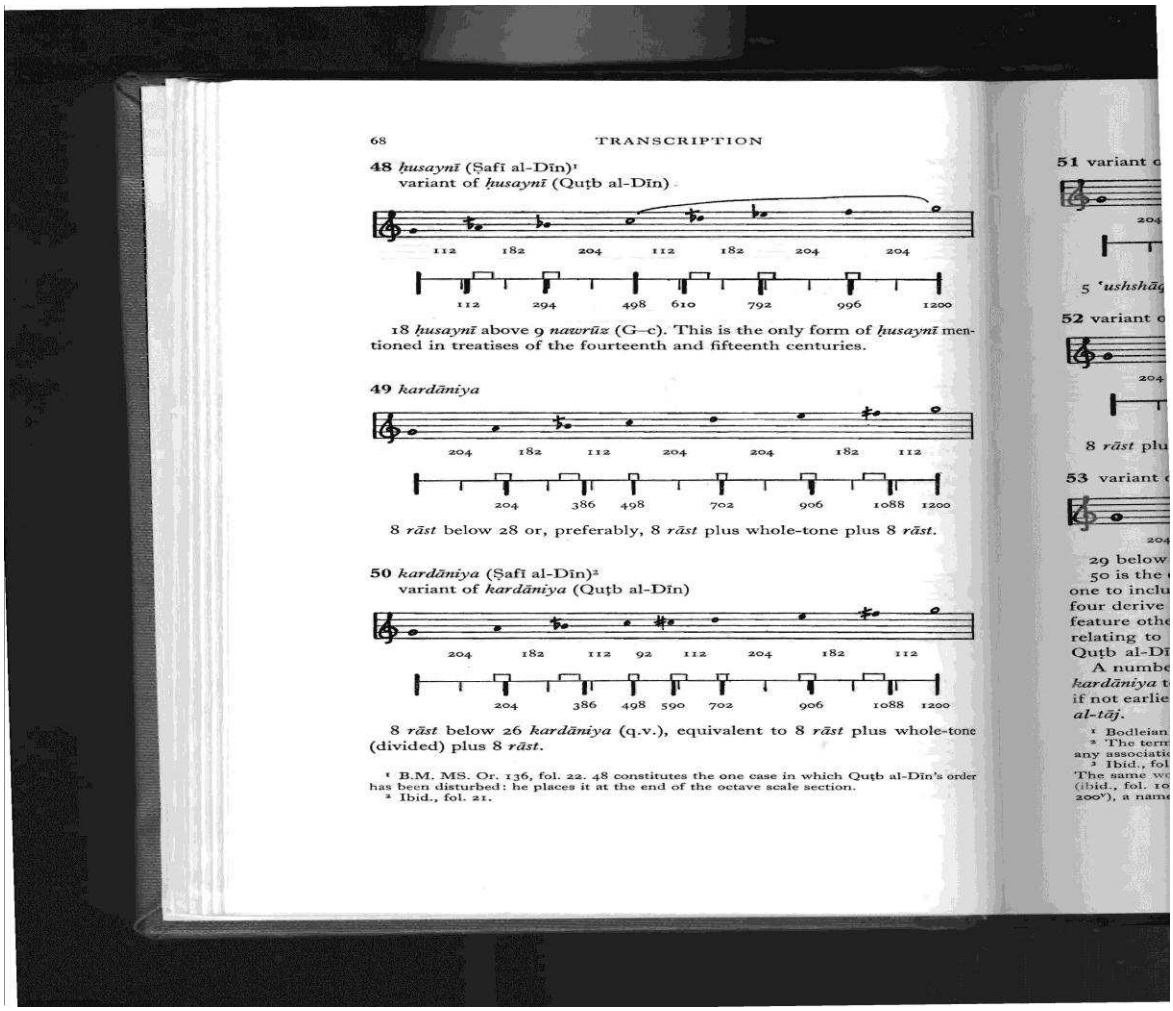
A pentachordal example is the busalik on G, Ab, Bb, C, and D, where the interval content is one limma and whole tones (90 and 204 cents). Another pentachordal species example is the nirizi starting at G, A, B ¼ flat, C #, and D, with interval cents at 204, 150, 267, and 81, respectively.

A species of minor sixth is the isfahanak starting on G, A ¼ flat, B ¼ flat, C, D ¼ flat, Eb, and E ¼ flat with intervals 182, 204, 112, 139, 128, and 49 respectively.

A species of minor 7^{th} is called the nawruz starting on G, A ¼ flat, Bb, C, D ¼ flat, Eb, and f, with intervals 112, 182, 204, 112, 182, and 204 cents. In terms of equal temperament, they build as such: 112, 294, 498, 610, 792, and 996 cents, off, but close

enough to equal temperament that it could possibly be performed without great departure of pitch desideratum.

Octave species of Arabic modes continue with rast at G, A, B ¼ flat, C, D, E ¼ flat, F, and G, with its intervals at 204, 182, 112, 204, 182, 112, and 204. The comparison with equal temperament is: 204, 386 (Just third), 498, 702, 884, 996, and 1200 cents.



68 TRANSCRIPTION

48 *ḥusaynī* (Ṣafī al-Dīn)[1]
variant of *ḥusaynī* (Quṭb al-Dīn)

112 182 204 112 182 204 204

112 294 498 610 792 996 1200

18 *ḥusaynī* above 9 *nawrūz* (G–c). This is the only form of *ḥusaynī* mentioned in treatises of the fourteenth and fifteenth centuries.

49 *kardāniya*

204 182 112 204 204 182 112

204 386 498 702 906 1088 1200

8 *rāst* below 28 or, preferably, 8 *rāst* plus whole-tone plus 8 *rāst*.

50 *kardāniya* (Ṣafī al-Dīn)[2]
variant of *kardāniya* (Quṭb al-Dīn)

204 182 112 92 112 204 182 112

204 386 498 590 702 906 1088 1200

8 *rāst* below 26 *kardāniya* (q.v.), equivalent to 8 *rāst* plus whole-tone (divided) plus 8 *rāst*.

[1] B.M. MS. Or. 136, fol. 22. 48 constitutes the one case in which Quṭb al-Dīn's order has been disturbed: he places it at the end of the octave scale section.
[2] Ibid., fol. 21.

In Safi al-Din's Kitab al-adwar, there are 2 main classes of materials: shudud, and awazat, which both combined total 18 modes. (Ibid, pp. 48-94)

Shudud are divided into three groups by emotion: group a, the ushshaq, busalik, nawa, for strength; and group b, rast, Iraq, and Isfahan, for courage; and group c, with

six modes: rahawi, hijazi, husayni, buzurg, zankula, and zirafkand, for pleasure. (Wright, p. 81)

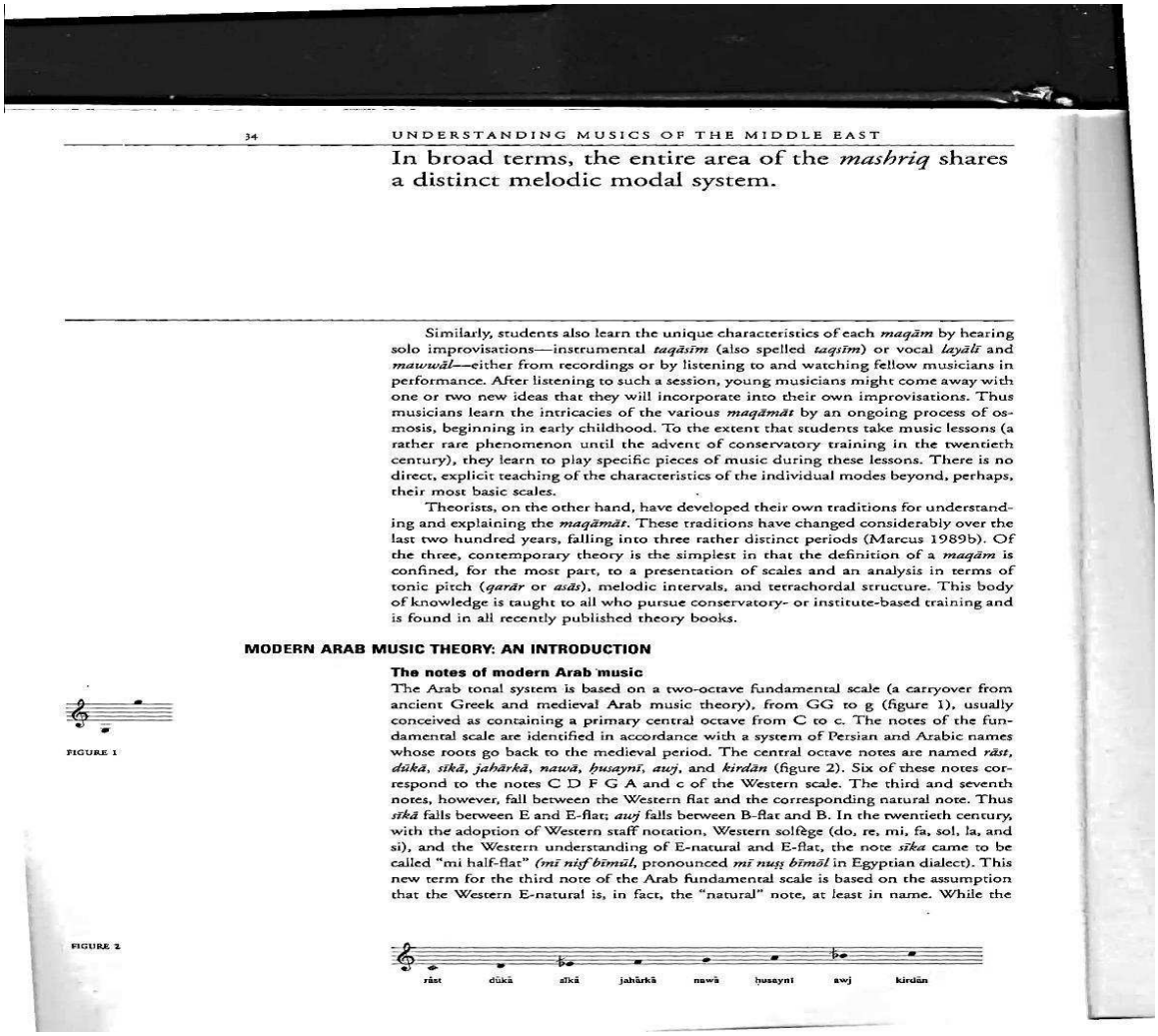
The relative position of the intervals do not seem to matter, which is odd, since it is the disposition of the interval that determines "mode" in relation to a starting pitch in Western theory, however, in the case with the Arabic/Persian maqamat, it does not matter at all. All modes in the shudud were created by both notation and lute fingerings.

The awazat are of Persian derivation and have six modes: kardaniya, kawasht, nawruz, maya, shahnaz, and salmak, and all are created with lute fingerings only. Also unlike the shudud, these modes show no similarities, and form no particular genre. (Wright, pp. 81-82)

Modern Arabic Maqamat and Scales

Modern Arabic music theory states that there is a tonic pitch, microtonal intervals, and tetrachordal structures. (Marcus, p. 33) The initial work done by Safi al-Din has lasted up until today. Today's pitches for a standard Rast scale are thus: C, D, E ¼ flat, F, G, A, B ¼ flat, and C with the following names: Rast, duka, sika, hajarka, nawa, husayni, awj, and kirdan respectively. Modern Arab tuning no longer use the Pythagorean comma and limma system, but have converted to Western Quartertone systems. Today, the Arab scale is accepted as having 24 discrete steps. It is still accepted that lute fingerings are the anchor in codifying all Arabic tunings. (Ibid, p. 36)

(Marcus, p. 34)



34 UNDERSTANDING MUSICS OF THE MIDDLE EAST

In broad terms, the entire area of the *mashriq* shares a distinct melodic modal system.

Similarly, students also learn the unique characteristics of each *maqām* by hearing solo improvisations—instrumental *taqāsīm* (also spelled *taqsīm*) or vocal *layālī* and *mawwāl*—either from recordings or by listening to and watching fellow musicians in performance. After listening to such a session, young musicians might come away with one or two new ideas that they will incorporate into their own improvisations. Thus musicians learn the intricacies of the various *maqāmāt* by an ongoing process of osmosis, beginning in early childhood. To the extent that students take music lessons (a rather rare phenomenon until the advent of conservatory training in the twentieth century), they learn to play specific pieces of music during these lessons. There is no direct, explicit teaching of the characteristics of the individual modes beyond, perhaps, their most basic scales.

Theorists, on the other hand, have developed their own traditions for understanding and explaining the *maqāmāt*. These traditions have changed considerably over the last two hundred years, falling into three rather distinct periods (Marcus 1989b). Of the three, contemporary theory is the simplest in that the definition of a *maqām* is confined, for the most part, to a presentation of scales and an analysis in terms of tonic pitch (*qarār* or *asās*), melodic intervals, and tetrachordal structure. This body of knowledge is taught to all who pursue conservatory- or institute-based training and is found in all recently published theory books.

MODERN ARAB MUSIC THEORY: AN INTRODUCTION

The notes of modern Arab music

The Arab tonal system is based on a two-octave fundamental scale (a carryover from ancient Greek and medieval Arab music theory), from GG to g (figure 1), usually conceived as containing a primary central octave from C to c. The notes of the fundamental scale are identified in accordance with a system of Persian and Arabic names whose roots go back to the medieval period. The central octave notes are named *rāst, dūkā, sīkā, jahārkā, nawā, ḥusaynī, awj*, and *kirdān* (figure 2). Six of these notes correspond to the notes C D F G A and c of the Western scale. The third and seventh notes, however, fall between the Western flat and the corresponding natural note. Thus *sīkā* falls between E and E-flat; *awj* falls between B-flat and B. In the twentieth century, with the adoption of Western staff notation, Western solfège (do, re, mi, fa, sol, la, and si), and the Western understanding of E-natural and E-flat, the note *sīka* came to be called "mi half-flat" *(mī niṣf bīmūl*, pronounced *mī nuṣṣ bīmōl* in Egyptian dialect). This new term for the third note of the Arab fundamental scale is based on the assumption that the Western E-natural is, in fact, the "natural" note, at least in name. While the

FIGURE 1

FIGURE 2

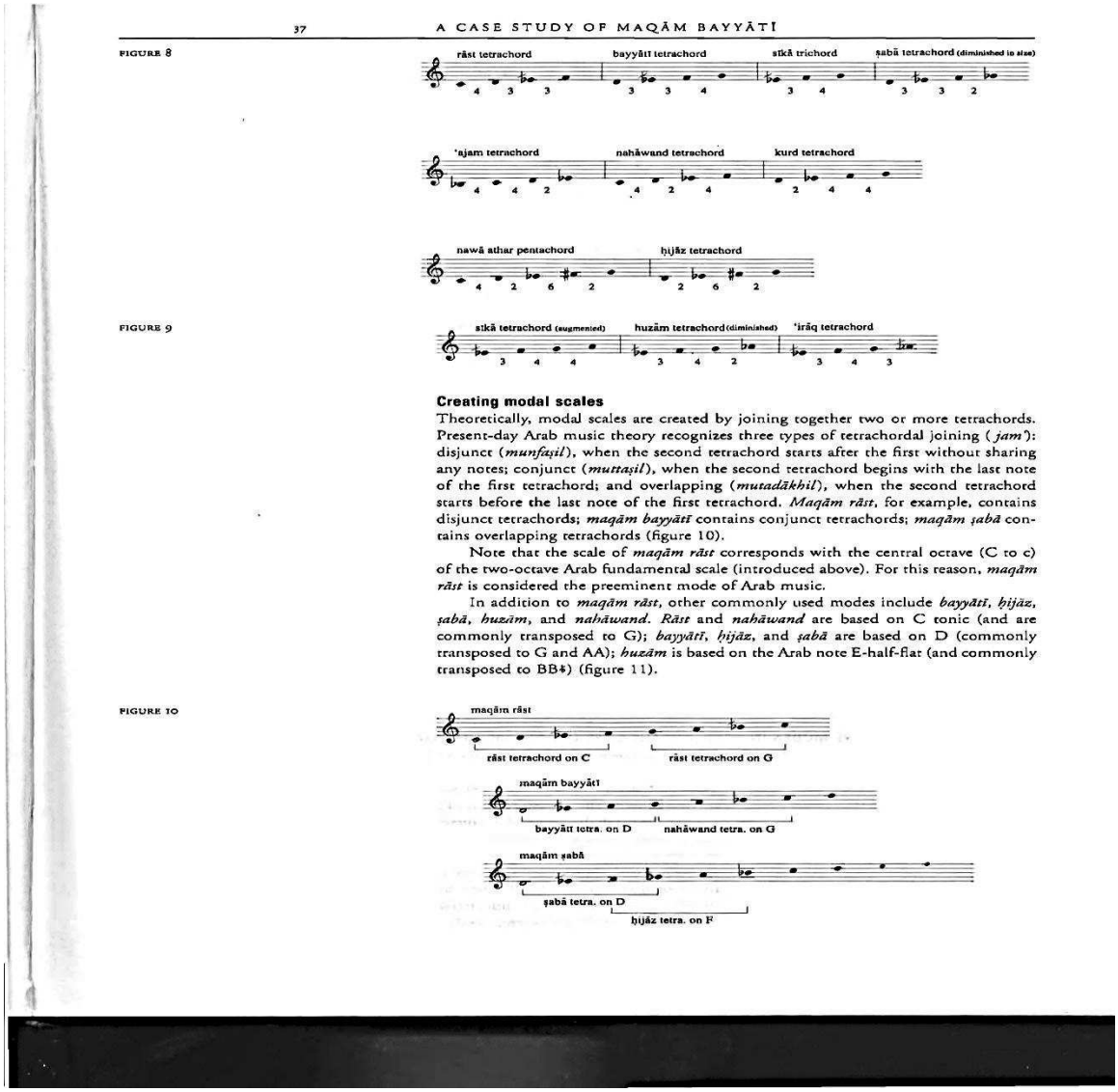
rāst dūkā sīkā jahārkā nawā ḥusaynī awj kirdān

Just as in the case with the Systematist scale, the quartertone system does not account for all microtonal variations. Tuning can still differ in that in addition to equal temperament, there are still vestiges of Pythagorean tuning, Just tuning, and individual "personal" tuning, where neutral thirds are different from singer to singer.

There are more than four intervals in use today: whole steps, ¾ step, semitone, 6 quarter step, and a five quartertone step. (Marcus, p. 36) Also, in the 14th century, modes

mostly did not begin on quartertones, but today they do, thereby making the quartertone, or microinterval, a structural, rather than decorative, part of the music. (Marcus, p. 38)

Just as Safi al-Din had suggested seven hundred years ago, today's Arabic scales are still composed of tetrachords and pentachords, and also trichords, which have become more in use recently in Arabic maqam. These tetrachords, jins can be viewed as sets, as in music set theory, which can be put together, ajnas, to form a great variety. (Maqam wiki) Modes today are also more transposable, from C to low G, to D. In creating scales in 20th century maqam, the word for combinatoriality is Jam, in Arabic.



37 A CASE STUDY OF MAQĀM BAYYĀTĪ

FIGURE 8

FIGURE 9

Creating modal scales

Theoretically, modal scales are created by joining together two or more tetrachords. Present-day Arab music theory recognizes three types of tetrachordal joining (*jam'*): disjunct (*munfaṣil*), when the second tetrachord starts after the first without sharing any notes; conjunct (*muttaṣil*), when the second tetrachord begins with the last note of the first tetrachord; and overlapping (*mutadākhil*), when the second tetrachord starts before the last note of the first tetrachord. *Maqām rāst*, for example, contains disjunct tetrachords; *maqām bayyātī* contains conjunct tetrachords; *maqām ṣabā* contains overlapping tetrachords (figure 10).

Note that the scale of *maqām rāst* corresponds with the central octave (C to c) of the two-octave Arab fundamental scale (introduced above). For this reason, *maqām rāst* is considered the preeminent mode of Arab music.

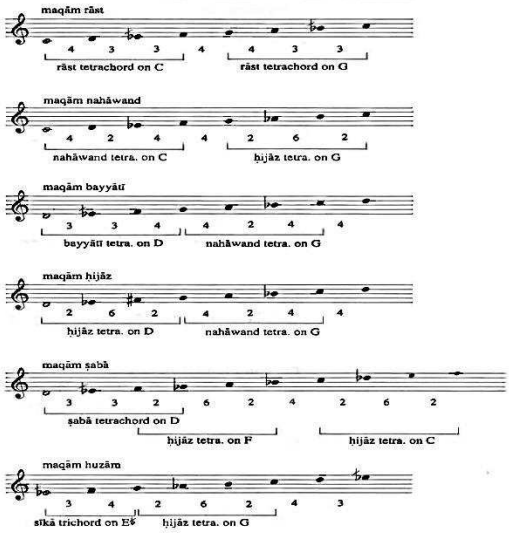
In addition to *maqām rāst*, other commonly used modes include *bayyātī*, *ḥijāz*, *ṣabā*, *huzām*, and *nahāwand*. *Rāst* and *nahāwand* are based on C tonic (and are commonly transposed to G); *bayyātī*, *ḥijāz*, and *ṣabā* are based on D (commonly transposed to G and AA); *huzām* is based on the Arab note E-half-flat (and commonly transposed to BB♯) (figure 11).

FIGURE 10

Modal scales fall into three types of techniques of joining tetrachords with pentachords: disjunct, conjunct, and overlapping. Disjunct modes are created when there are no shared notes from a tetrachord to a pentachord, conjunct when there is one shared tone, and overlapping when there are two or more shared tones. This notion of disjunct/conjunct was also a feature of Safi al-Din's theory, which has also survived the centuries.

Rast is the preeminent mode in Arabic music today. Rast can be found to begin on C and on G. Other commonly used modes today are the bayyati, hijaz, saba, huzam, and nahawand.

FIGURE 11



The above is a presentation of modern-day Arab music theory, which was developed in the first half of the twentieth century and became predominant during the 1930s through the 1970s. According to this theory, the various modal scales are presented in terms of scales with a recognized tonic pitch, and are analyzed in terms of intervals and tetrachords. This is how the modes are presented in most contemporary Arab theory books and in classes in modern institutes and conservatories throughout the eastern Arab world. (See, for example, al-Farjānī 1986; Muḥammad 1984).

THE MODES IN PRACTICE: THE CASE OF *MAQĀM BAYYĀTĪ*

In practice, however, a more complex and dynamic definition of the individual modes emerges, involving such considerations as the notes not duplicating at the octave, specific nontempered intonation for some notes, a common progression or path for moving through the various regions of a mode's scale, additional tetrachords beyond those indicated in the simple scalar presentation of the mode, characteristic accidentals, and a set of standard modulations to other modes. The presence and persistence of this considerably denser definition of the modes in practice speak both to the existence of distinct traditions of music theory and music practice and to another important aspect of traditional Middle Eastern music culture: that performers and composers absorb a "common practice" understanding of the various melodic modes and then seek to work within the existing modal tradition, while improvising or creating fixed

Another common feature in Arabic music today is the lack of octave duplications that were present in Safi's day. Music in the Arabic tradition is maintained as a tradition and although individuality is a plus, it cannot replace or stand out against the tradition itself. (Marcus, pp. 33-44)

Arabic music has its common practice protocol. A singer will begin in the middle of a mode and slide down to the tonic, D. Other modes are referenced, like an ajam at F, in terms of a minor modulation, but will return to the D of a bayyati. In the bayyati, the E ¼ flat changes down 15 cents, while the B ¼ flat raises 15 cents. (Marcus pp. 33-44). On

the way to the awj, the climax, the bayyati ascends higher and higher. A precedential move to the mode hijaz is also part of the tradition towards the cadence of the mode. Therefore, up to three modes can be used in one setting: begin in bayyati, and move to the nahawand on G, and then to the rast on G, and then to the hijaz on F, and back to the bayyati on D. Each mode has its characteristic microintervals that are taught by ear, and only are hinted at by notation. (loc cit)

Modulation in Arabic maqamat can be either direct or via common tone and an octave is considered a modulation. The most common maqamat in use today are the bayyati, the husayni, and the shuri. (loc cit)

Turkish Makam modes and scales

In addition to the Arabic/Persian influence on Central Asian maqamat, Turkey has also a substantial input as evinced through its influence beginning in Azerbaijan and extending into Uzbekistan. The Turkish Makam (with a k) was initially influenced by Arabic and Persian maqam. A common mode in Turkey is the beyeti, similar to the previously discussed mode from Arabic origin. (Signell, p. 47)

In Turkish makamlar, according to Turkish theorist Rauf Yekta, there are six parts to a mode: tonic, dominant, ambitus, movement, beginning, and tetrachords/pentachords, which maps out roughly, or more modernly, as: scale, melody, modulation, tradition, and tessitura. (Ibid, p. 48) Modern Turkish music still makes use of the ancient comma system found in Systematist theory, which stemmed from the ancient Greeks. (loc cit) Modern Turkish theory still uses the Pythagorean comma at 24 cents and there are generally five interval classes in Turkish music: bakiye, at 4 commas, or 90 cents, kucuk

mucennep, at five commas, or 114 cents, buyuk mucennep, at 8 commas, or 180 cents, tanini, at nine commas, or 204 cents (whole tone), and artik ikili, at 12 commas, or 271 cents.

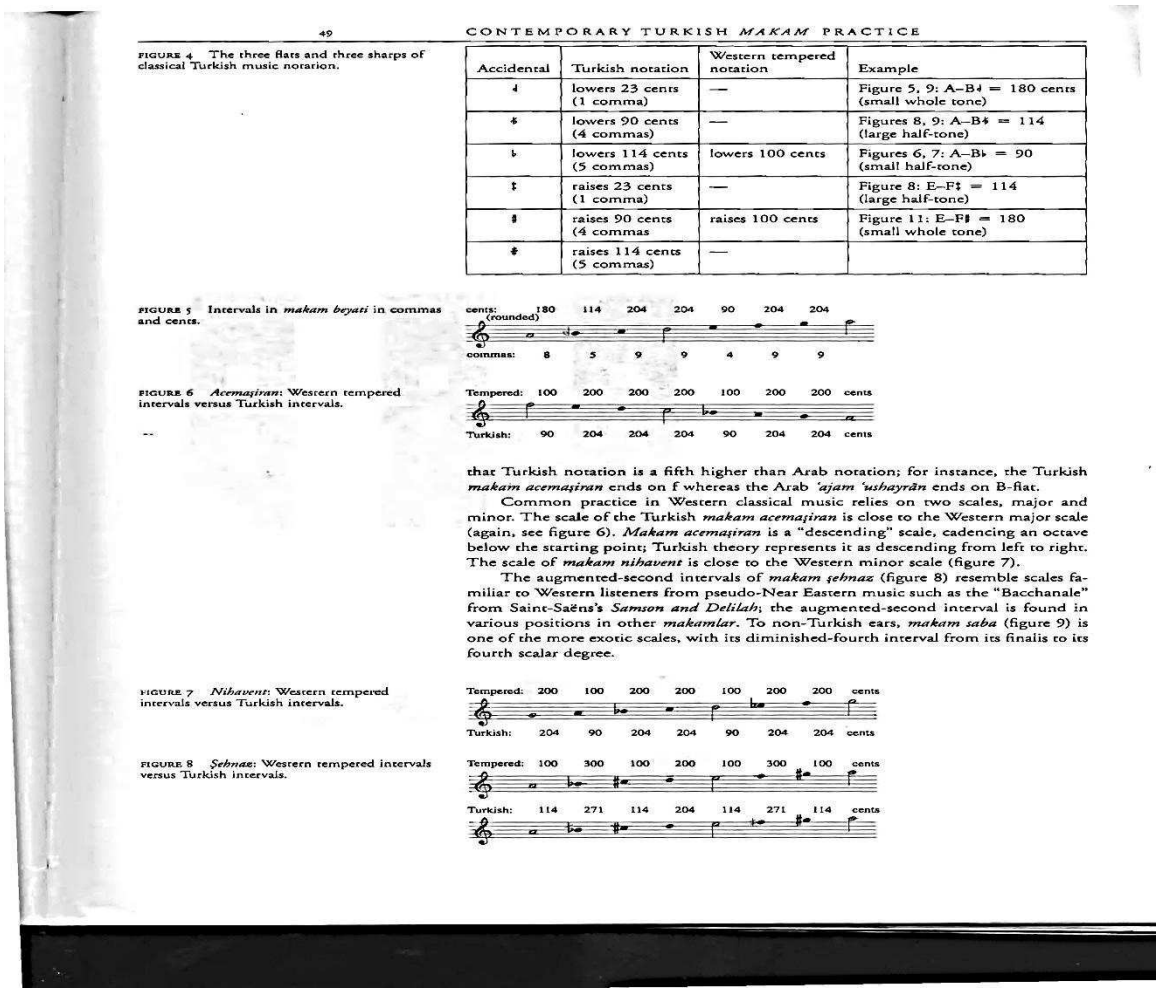


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FIGURE 4 The three flats and three sharps of classical Turkish music notation.

Accidental	Turkish notation	Western tempered notation	Example
𝄳	lowers 23 cents (1 comma)	—	Figure 5, 9: A–B𝄳 = 180 cents (small whole tone)
𝄬	lowers 90 cents (4 commas)	—	Figures 8, 9: A–B𝄬 = 114 (large half-tone)
♭	lowers 114 cents (5 commas)	lowers 100 cents	Figures 6, 7: A–B♭ = 90 (small half-tone)
𝄲	raises 23 cents (1 comma)	—	Figure 8: E–F𝄲 = 114 (large half-tone)
𝄪	raises 90 cents (4 commas	raises 100 cents	Figure 11: E–F𝄪 = 180 (small whole tone)
♯	raises 114 cents (5 commas)	—	

FIGURE 5 Intervals in *makam beyati* in commas and cents.

cents: 180 (rounded) 114 204 204 90 204 204
commas: 8 5 9 9 4 9 9

FIGURE 6 *Acemaşiran*: Western tempered intervals versus Turkish intervals.

Tempered: 100 200 200 200 100 200 200 cents
Turkish: 90 204 204 204 90 204 204 cents

that Turkish notation is a fifth higher than Arab notation; for instance, the Turkish *makam acemaşiran* ends on f whereas the Arab *'ajam 'ushayrān* ends on B-flat.

Common practice in Western classical music relies on two scales, major and minor. The scale of the Turkish *makam acemaşiran* is close to the Western major scale (again, see figure 6). *Makam acemaşiran* is a "descending" scale, cadencing an octave below the starting point; Turkish theory represents it as descending from left to right. The scale of *makam nihavent* is close to the Western minor scale (figure 7).

The augmented-second intervals of *makam şehnaz* (figure 8) resemble scales familiar to Western listeners from pseudo-Near Eastern music such as the "Bacchanale" from Saint-Saëns's *Samson and Delilah*; the augmented-second interval is found in various positions in other *makamlar*. To non-Turkish ears, *makam saba* (figure 9) is one of the more exotic scales, with its diminished-fourth interval from its finalis to its fourth scalar degree.

FIGURE 7 *Nihavent*: Western tempered intervals versus Turkish intervals.

Tempered: 200 100 200 200 100 200 200 cents
Turkish: 204 90 204 204 90 204 204 cents

FIGURE 8 *Şehnaz*: Western tempered intervals versus Turkish intervals.

Tempered: 100 300 100 200 100 300 100 cents
Turkish: 114 271 114 204 114 271 114 cents

Turkish notation is written a fifth higher than Arabic notation, so what would normally be on F in Arabic maqam, would be on C in Turkish makamlar.

A common mode in Turkey, the sehnaz, would be notated as: A, B ¼ flat, C #, D, E, F ¼ sharp, G#, A, corresponding to the interval distances in cents: 114, 271, 114, 204, 114, 271, and 114. This particular scale is characterized by the augmented 2nd and has a classically distinct “middle eastern” sound.

Please note the graph from the Middle East Garland encyclopedia page 50:

FIGURE 9 *Saba*: intervals

The scale of *makam rast* differs more perceptibly than *makam acemaşiran* from the Western major scale because the third degree of *rast* is clearly flatter than the comparable Western interval. In major scales, the first two intervals add up to 400 (200 + 200) cents; in *acemaşiran*, they add up to 408 (204 + 204); in *rast*, they add up to only 384 (204 + 180; figure 10). The scale of *makam beyati* overlaps that of *makam rast*, beginning on the second degree of *rast*, except for a consistent f-natural in *beyati* (figure 11). To the Western ear, *beyati* sounds similar to the descending melodic minor scale except for the slightly lower pitch *segah*, its second degree.

FIGURE 10 Comparison of major, *acemaşiran*, and *rast* pentachords.

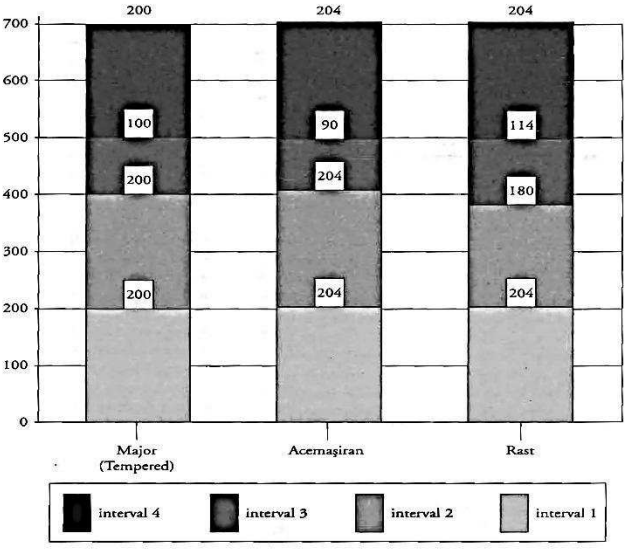
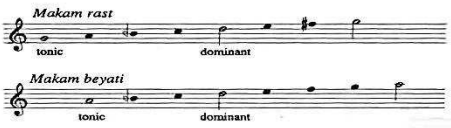


FIGURE 11 Overlap between *rast* and *beyati*.



The above shows quite clearly the differences between two Turkish makam, Rast and Acemasiran, pitted against standard 12 tone equal temperament. Turkish music also does not make use of octaves, like modern Arab maqamat. The dominant note of Turkish modes can be the fifth, but it also can easily be the third or fourth scale degree. A seyir is a makam that is instructional and has all features of a didactic makam for students.

Modulation in Turkish Makamlar is called gecki and is described as a “taste” of another mode, and roughly corresponds to a Western brief tonicization technique, although there is no counterpart of a “secondary dominant.” (Signell, p. 52)

Makamlar also have a feature of “combinatoriality”, to borrow Schoenberg’s term again, and it is referred to as compound makamlar, where tetrachords and pentachords can be built and reassembled like building blocks. In Turkish performance, individuality is highly prized, if it is still kept within a tradition, akin to American Jazz, in the sense that the condition is met that an overall “tradition” is adhered to in the face of personal artistic liberty. (Ibid, p. 56)

Earlier in the 20th century, Turkey, under Ataturk, promoted a search for the most pure of Turkish folk music. (Markoff, P. 81) Ataturk’s search led to none other than Uzbekistan, Azerbaijan, Turkmenistan, and northern Afghanistan.

In terms of melody, the agiz, translates as ‘dialect’, which is specifically regional and is a quality of modern folk melodies initially sought by Ataturk that became part of urban singing styles. Mode in Turkey is referred to as ayak. (Ibid, p. 82)

Like the Arabic scale under the Systematists, the Turkish scale, koma sesler, is also 17 tones and derives from the work done by Safi al-Din. The term for actual quartertones in Turkish is borrowed from the Greek diesis, which is the Greek approximation for a 50 cent quartertone due to the cycle of successive fifths at the octave form a difference of 48 cents. (Sethares)

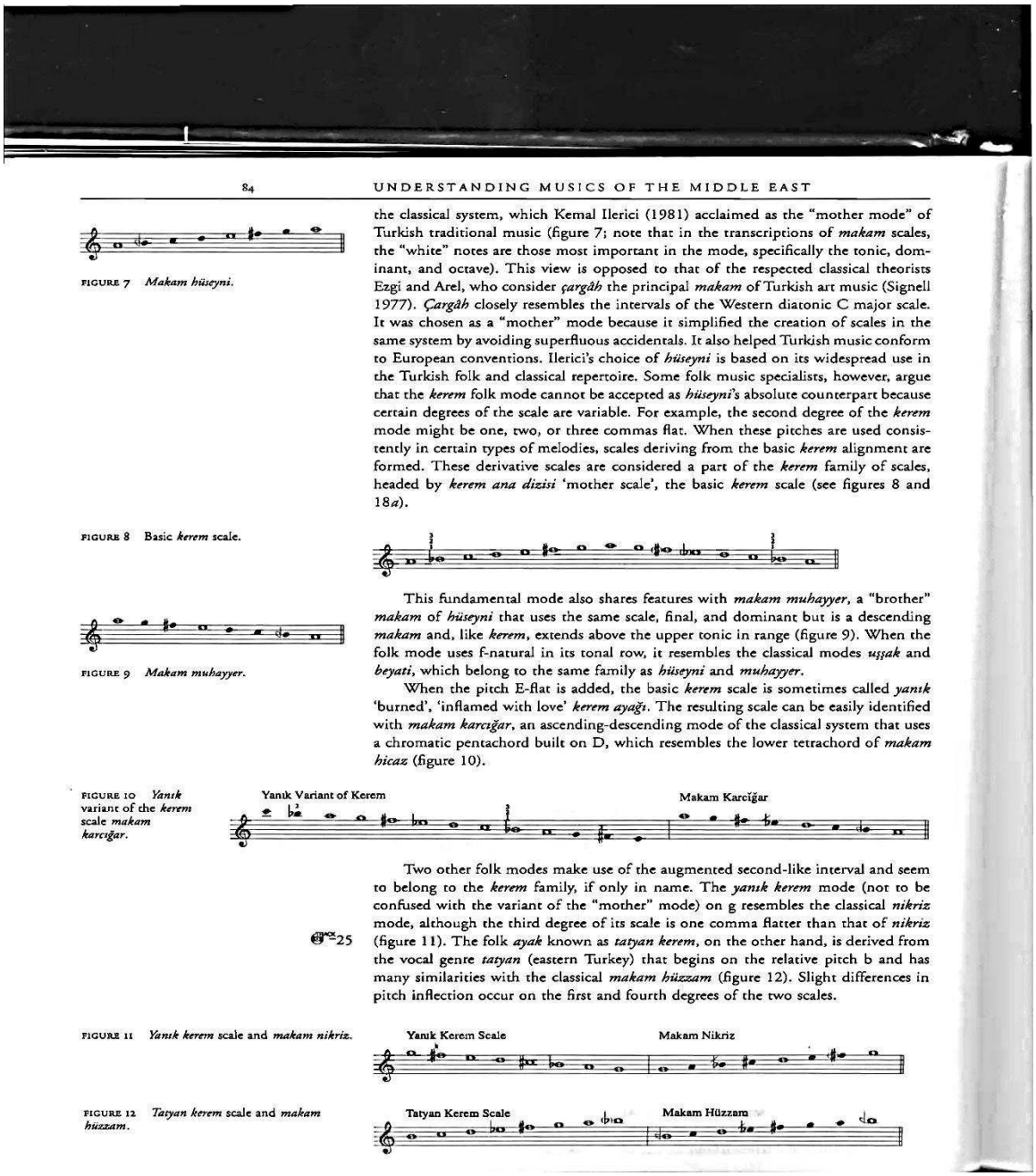


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FIGURE 7 *Makam hüseyni.*

the classical system, which Kemal Ilerici (1981) acclaimed as the "mother mode" of Turkish traditional music (figure 7; note that in the transcriptions of *makam* scales, the "white" notes are those most important in the mode, specifically the tonic, dominant, and octave). This view is opposed to that of the respected classical theorists Ezgi and Arel, who consider *çargâh* the principal *makam* of Turkish art music (Signell 1977). *Çargâh* closely resembles the intervals of the Western diatonic C major scale. It was chosen as a "mother" mode because it simplified the creation of scales in the same system by avoiding superfluous accidentals. It also helped Turkish music conform to European conventions. Ilerici's choice of *hüseyni* is based on its widespread use in the Turkish folk and classical repertoire. Some folk music specialists, however, argue that the *kerem* folk mode cannot be accepted as *hüseyni*'s absolute counterpart because certain degrees of the scale are variable. For example, the second degree of the *kerem* mode might be one, two, or three commas flat. When these pitches are used consistently in certain types of melodies, scales deriving from the basic *kerem* alignment are formed. These derivative scales are considered a part of the *kerem* family of scales, headed by *kerem ana dizisi* 'mother scale', the basic *kerem* scale (see figures 8 and 18*a*).

FIGURE 8 Basic *kerem* scale.

FIGURE 9 *Makam muhayyer.*

This fundamental mode also shares features with *makam muhayyer*, a "brother" *makam* of *hüseyni* that uses the same scale, final, and dominant but is a descending *makam* and, like *kerem*, extends above the upper tonic in range (figure 9). When the folk mode uses f-natural in its tonal row, it resembles the classical modes *uşşak* and *beyati*, which belong to the same family as *hüseyni* and *muhayyer*.

When the pitch E-flat is added, the basic *kerem* scale is sometimes called *yanık* 'burned', 'inflamed with love' *kerem ayağı*. The resulting scale can be easily identified with *makam karcığar*, an ascending-descending mode of the classical system that uses a chromatic pentachord built on D, which resembles the lower tetrachord of *makam hicaz* (figure 10).

FIGURE 10 *Yanık* variant of the *kerem* scale *makam karcığar.*

Two other folk modes make use of the augmented second-like interval and seem to belong to the *kerem* family, if only in name. The *yanık kerem* mode (not to be confused with the variant of the "mother" mode) on g resembles the classical *nikriz* mode, although the third degree of its scale is one comma flatter than that of *nikriz* (figure 11). The folk *ayak* known as *tatyan kerem*, on the other hand, is derived from the vocal genre *tatyan* (eastern Turkey) that begins on the relative pitch b and has many similarities with the classical *makam hüzzam* (figure 12). Slight differences in pitch inflection occur on the first and fourth degrees of the two scales.

25

FIGURE 11 *Yanık kerem* scale and *makam nikriz.*

FIGURE 12 *Tatyan kerem* scale and *makam hüzzam.*

Modern folk music in Turkey all come from the makam and ancient modes passed on by the Arab/Persian influences, where many of the names of modes are still in the original Persian, such as cargah, a mode that is "diatonic" and closely resembles the C major scale. (Markoff p. 84)

Below are some more examples of Turkish makamlar:

FIGURE 7 *Makam hüseyni.*

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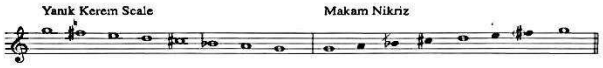
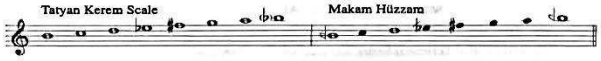
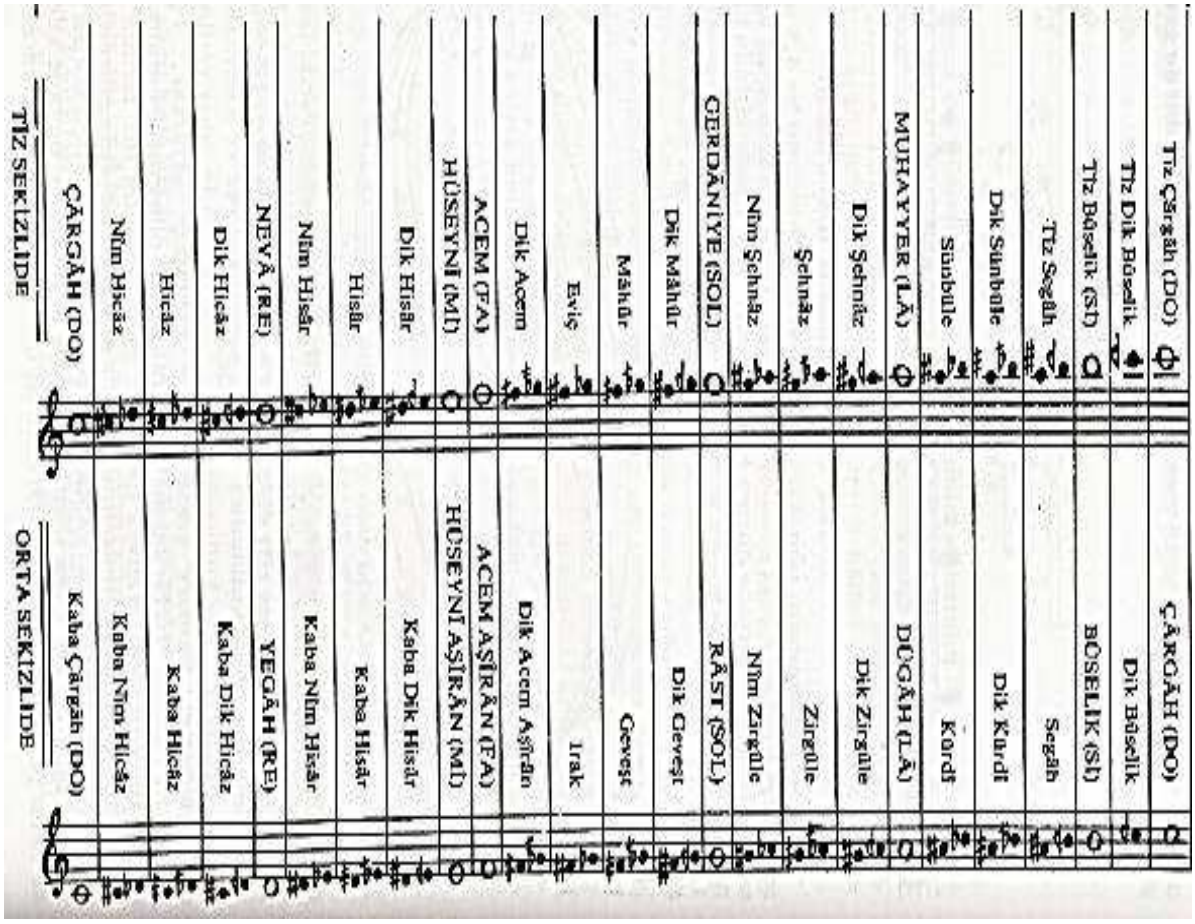


FIGURE 12 *Tatyan kerem* scale and *makam hüzzam.*



It is theorized that since there are nine commas to a whole tone in Turkish music, and there are six whole tones to an octave, that there are 54 tones to the Turkish gamut

scale, if at least it be the case they are considered as place holders. (Oud Café)



Notes however, as this graph proves, are quite real and are all named. (Makam Wikipedia) C in the treble clef to high c is called Cargah, and Tiz Cargah, from Persian.

Makam are a series of notes but behave in a certain way, again akin to a Schoenberg row: the seyir will rise, cikici, fall, inici, or both rise and fall, inici-cikici. (Makam Wiki p. 4) The tonic of a Makam is called the durak, the dominant, which is the first note of the second tetrachord is called the guclu, and the leading tone is called the yeden. Additionally, there are simple Makams, all with rising seyir; transposed Makams, with limited transposition, and compound Makams, combinatoriality, numbering into the hundreds. (Makam wiki p.4)

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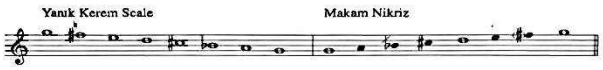
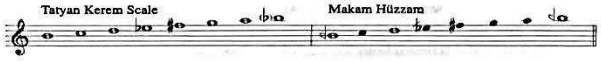


FIGURE 12 *Tatyan kerem* scale and *makam hüzzam.*



Instruments are key to the figuring of intervals, as in Arabic theory, and Turkish lutes are used, the Tanbur, for example, has up to 18 frets, for a possible 18 divisions of the octave.

The modes most used for Turkish folk music are: huseyni, tahir, and the ussak. The term ayak actually is a prosodic term for 'foot' in Turkish poetry, but also has the

same meaning as mode, since there is a classic relationship between poetry and makam, as in Central Asia. The “mother mode” of Turkish music is the husayni makam. To be “burned” is a popular theme of love in Turkish poetry and music and it is called yanik. (Markoff)

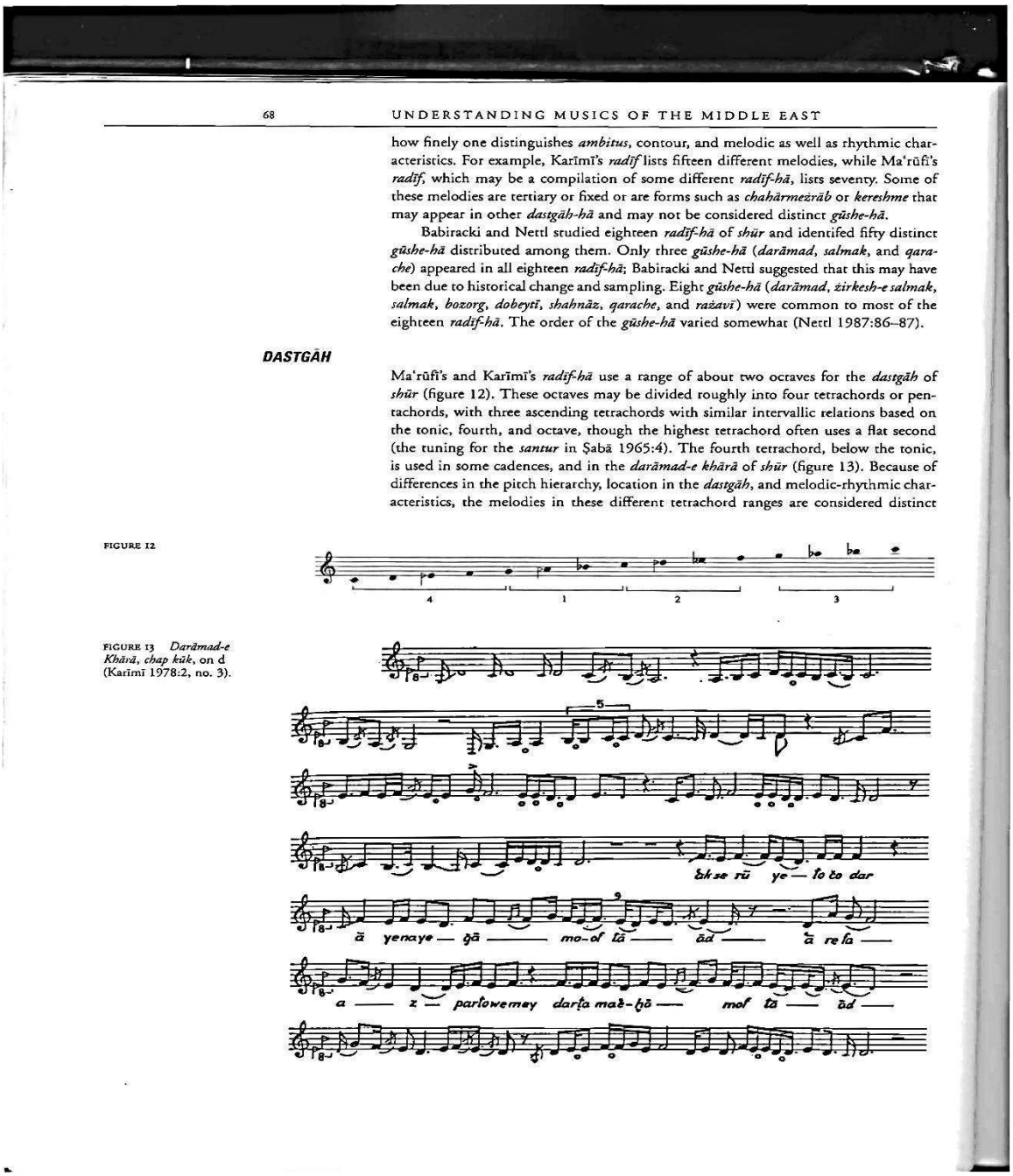
Iranian maye and scales

In Iran, modes are still ambiguous even today. Modes used to be called maqam, but have since been changed to maye. In Iran, the radif is the full repertoire a performer can know, of which many maye are part of the dastgah, or modal complex. It is through the Persian influence where the marriage of poetry and mode is indelible and has had a profound influence on the Bukharan shash maqam. (caton, garland)

Persian music also works in tetrachords, one of which the shur, begins on G, A ¼ flat, Bb, and C. The interrelatedness between Iran and Arabic music has been explained above by the work of O Wright, but since the early renaissance, Persian music has had its own trajectory of development. (Caton, garland)

The Persian dastgah is a modal complex that means ‘loom’, where one “weaves” a melody out of small cells of four to five pitches and the music is highly influenced by Sufism, which is the mystical element of Islam.

Persian intervals are similar to Arabic, in that they also have converted to quartertones, with exception to the “neutral third,” which is malleable.



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how finely one distinguishes *ambitus*, contour, and melodic as well as rhythmic characteristics. For example, Karīmī's *radīf* lists fifteen different melodies, while Ma'rūfī's *radīf*, which may be a compilation of some different *radīf-hā*, lists seventy. Some of these melodies are tertiary or fixed or are forms such as *chahārmežrāb* or *kereshme* that may appear in other *dastgāh-hā* and may not be considered distinct *gūshe-hā*.

Babiracki and Nettl studied eighteen *radīf-hā* of *shūr* and identifed fifty distinct *gūshe-hā* distributed among them. Only three *gūshe-hā* (*darāmad*, *salmak*, and *qarache*) appeared in all eighteen *radīf-hā*; Babiracki and Nettl suggested that this may have been due to historical change and sampling. Eight *gūshe-hā* (*darāmad*, *žirkesh-e salmak*, *salmak*, *bozorg*, *dobeytī*, *shahnāz*, *qarache*, and *ražavī*) were common to most of the eighteen *radīf-hā*. The order of the *gūshe-hā* varied somewhat (Nettl 1987:86–87).

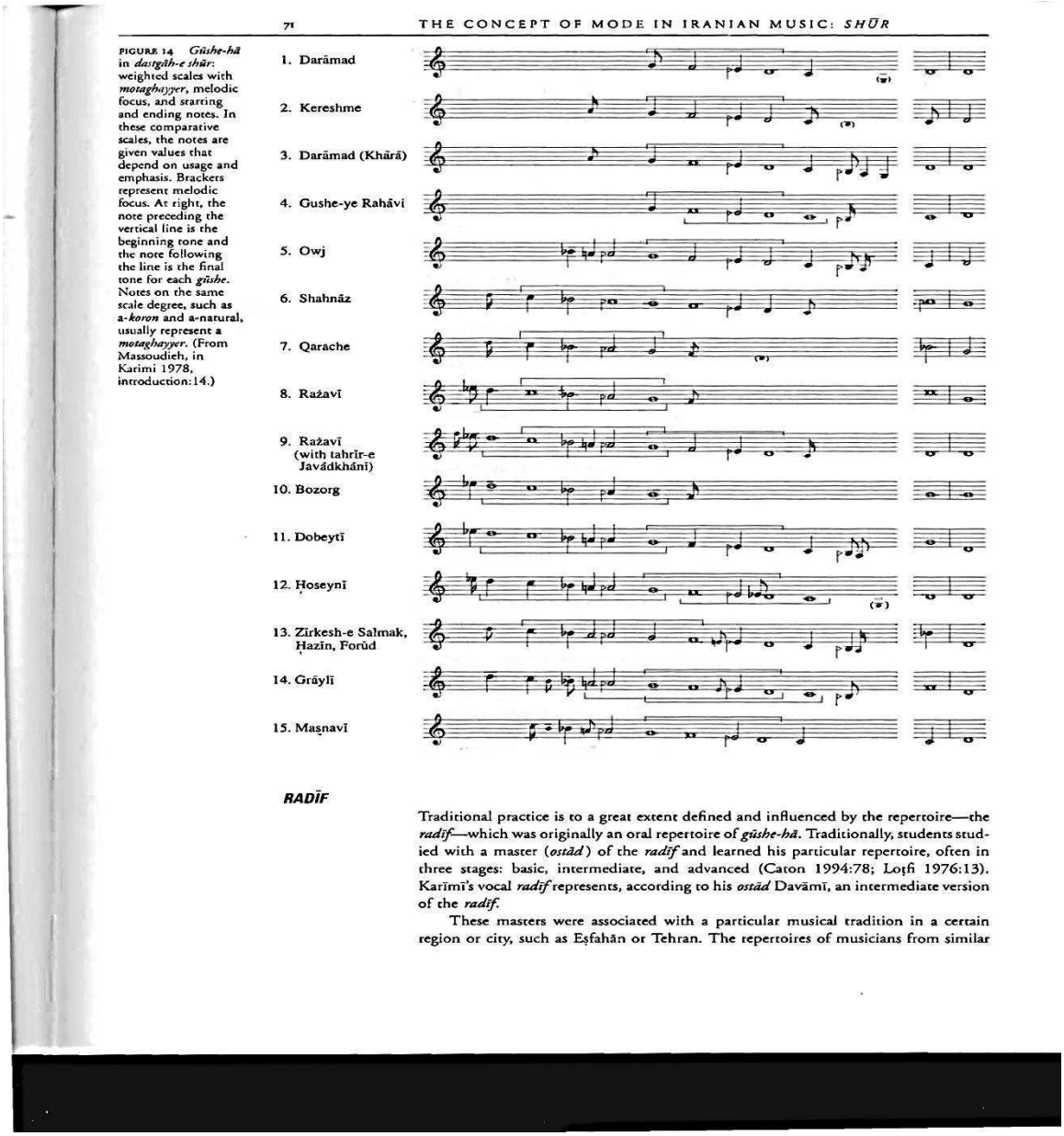
DASTGĀH

Ma'rūfī's and Karīmī's *radīf-hā* use a range of about two octaves for the *dastgāh* of *shūr* (figure 12). These octaves may be divided roughly into four tetrachords or pentachords, with three ascending tetrachords with similar intervallic relations based on the tonic, fourth, and octave, though the highest tetrachord often uses a flat second (the tuning for the *santur* in Ṣabā 1965:4). The fourth tetrachord, below the tonic, is used in some cadences, and in the *darāmad-e khārā* of *shūr* (figure 13). Because of differences in the pitch hierarchy, location in the *dastgāh*, and melodic-rhythmic characteristics, the melodies in these different tetrachord ranges are considered distinct

FIGURE 12

FIGURE 13 *Darāmad-e Khārā, chap kūk*, on d (Karīmī 1978:2, no. 3).

The neutral third is called a koron and is promoted in each individual performer as his own neutral third, rather than a standardized interval. The feeling of the piece determines the size of the koron, and they range from 135 cents to 165 cents. (Caton, Garland Encyclopedia)



71 THE CONCEPT OF MODE IN IRANIAN MUSIC: *SHŪR*

FIGURE 14 *Gūshe-hā* in *dastgāh-e shūr*: weighted scales with *motaghayyer*, melodic focus, and starting and ending notes. In these comparative scales, the notes are given values that depend on usage and emphasis. Brackets represent melodic focus. At right, the note preceding the vertical line is the beginning tone and the note following the line is the final tone for each *gūshe*. Notes on the same scale degree, such as a-*koron* and a-natural, usually represent a *motaghayyer*. (From Massoudieh, in Karimi 1978, introduction:14.)

1. Darāmad
2. Kereshme
3. Darāmad (Khārā)
4. Gushe-ye Rahāvī
5. Owj
6. Shahnāz
7. Qarache
8. Rażavī
9. Rażavī (with tahrīr-e Javādkhānī)
10. Bozorg
11. Dobeytī
12. Ḥoseynī
13. Zīrkesh-e Salmak, Ḥazīn, Forūd
14. Grāylī
15. Maṣnavī

RADĪF

Traditional practice is to a great extent defined and influenced by the repertoire—the *radīf*—which was originally an oral repertoire of *gūshe-hā*. Traditionally, students studied with a master (*ostād*) of the *radīf* and learned his particular repertoire, often in three stages: basic, intermediate, and advanced (Caton 1994:78; Loṭfi 1976:13). Karīmī's vocal *radīf* represents, according to his *ostād* Davāmī, an intermediate version of the *radīf*.

These masters were associated with a particular musical tradition in a certain region or city, such as Eṣfahān or Tehran. The repertoires of musicians from similar

The cadential functions in Persian music parallel Arabic in that there is also a precedential device called a forud, that signals the ending of the dastgah. Within a performance, there are also modal changes, modulations, to other modes and there is a pitch called a motaghayyer, that helps as a catalyst for the changing modes and its pitch reflects mood as well as direction of modal modulation.

Each pitch in Persian music, like Turkish, and Arabic, has a name and function: motaghayyer; for changing pitch; ist for stopping; aghaz for starting; and a ‘witness tone’ called shahad. (Caton pp. 129-142)

Within the dastgah, there is a gush-ha, which is a limited range of the mode that behaves like a motive. The dastgah, like a fugue, seems to be a process rather than a form. Please see above for a list of gush-ha types (the concept of mode in Iranian Shur). (Ibid)

The emotional aspect of the modes in Iran is very important and cannot be overlooked. The essential motivating factor is the glory of Allah, and through the mysticism of the Sufi sect, Iranian music and poetry go hand in hand. The audience, in general, are knowledgeable listeners, who know the music and can follow the modulations and the ascent as the performer climbs upward to the owj, or climax, for the catharsis and release of feeling. The shur is about defeated love, and is very sad. The image is of a teardrop and the dastgah is always centered on love—the love of Allah, or a loved one, but both are usually implied in relief, as a tonal allegory, or a metaphor.

Both Safi al-Din and Qutb al-Din were very important to the history of Persian art music. In actuality, there are several microtonal scale systems at work in Iran: Safi al-Din’s Systematist 17-note scale, Vaziri’s conversion to quartertones, and Mehdi Barkechli’s 22-tone unequal division of the octave. Persia was a tremendous influence on Azerbaijan, which in turn was a profound influence on Uzbekistan. (Ibid)

Azerbaijan Mugham and scales

Azerbaijan was heavily influenced by Persian, Turkish makam and Arabic maqam With respect to Azerbaijan, Islamic countries in Transoxania show a great deal of commonalities all the way through Uzbekistan and into Tajikistan. (Zade, pp. 921-932)

The Azerbaijani Mugham is a highlty complex art form that weds classical poerty and musical improvisation in specific local modes. There are three major areas of Mugham performance in 20th century Azerbaijan, and they are: the Garabagh, Shirvan, and the Baku. (Mugham wiki, p. 1)

In the 15th century, a famous musician and theorist named Abdulqadir ibn Gheibi al-Maraghi studied meticulously the treatises of both Safi al-Din and Qutb al-Din both of whom he had begun to employ the Systematist theoretical system. Timur, who had heard of the great musician, came to Azerbaijan and took him back to Uzbekistan to Samarkand, where al-Maraghi laid the foundations of the Systematist theory in Central Asia. (Zade)

Al Maraghi was essentially the founding father of all shash maqam in the Central Asian region, and was key to the development, along with Persian influence, the Bukharan shash maqam, which still has original elements to this day in its repertoire. For example, the part of the shash maqam titled “Nuba” is still in use today. (Zade)

Azerbaijan also has a more in depth use of microtonality as its instruments feature lutes with a full 22 fret fingerboard, which surpasses both Persian and Arabic influences. The Tar is still greatly responsible for the maintenance of its microtonal usage and also the integration of the Turkish comma system. Common intervals in Azerbaijani music are: 204 cents whole tone, 180 cents minor whole tone, 114 cents apotome, 90 cent limma, and a 66 cent “diesis.” (Please see below)

The mughamlar of Azerbaijan includes this small sample: Rast (common everywhere!), sur, segah, carhagah (from the Persian cargah), bayati (also common everywhere), humayan and the suster. (Zade)

Large scale forms include the destgah, which is straight from Persia, featuring the awj, where the destgah are about poetry and love, just as in the Persian dastgah.

MODAL STRUCTURE

The tone system of Azerbaijani traditional music is most fully reflected in the fingerboard of the *tar*. The seventeen-tone scale, which differs from Arab and Persian scales, is produced on its main melodic string (figure 5*a*). Theoretical treatises discuss the division of the major Pythagorean tone (204 cents) into two minor semitones and a comma (90 + 90 + 24), as well as the possibility of forming a major semitone (114 = 90 + 24) or minor whole tone (180 = 90 + 90). An interval of 66 cents is produced on the *tar* by subtracting a comma from the minor semitone (90 – 24 = 66), shown in figure 5*a* by the *z*. The fact that frets for tones of 66 and 114 cents are fixed on the fingerboard indicates their special importance in musical practice.

This nontempered scale system is most fully realized in the art of the *muğam*. The Azerbaijani *muğam* of *segah* exists in several variants, which include thirds of different values. Use of the entire tonal range of the *tar* leads to the tempered system in which a semitone is lowered from 114 cents and raised from 90 cents; the difference of 10 cents is virtually indistinguishable to the ear (g to g-sharp = 90 cents; a to a-flat = 114 cents).

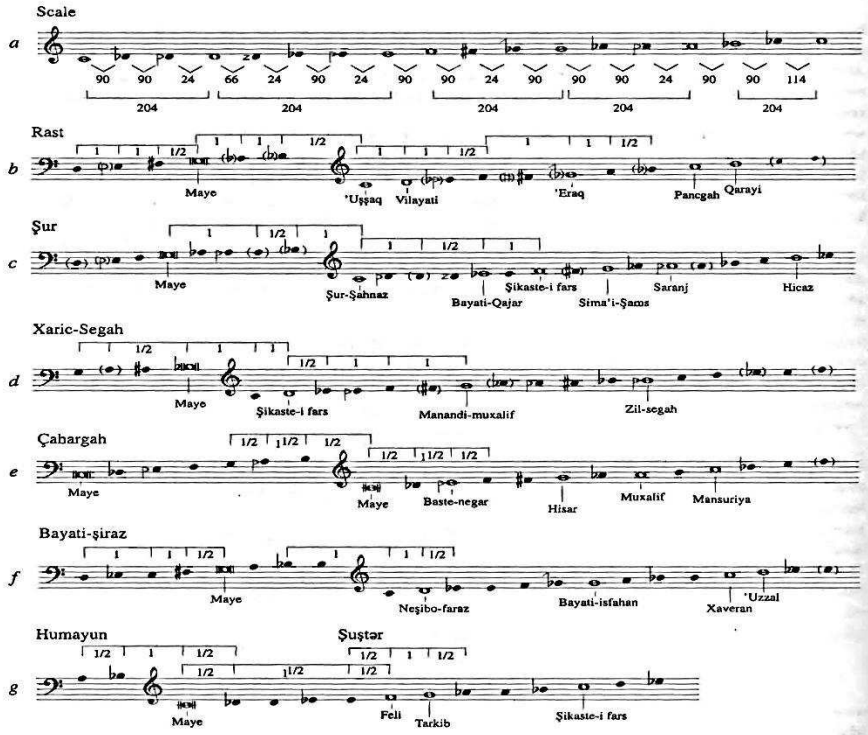
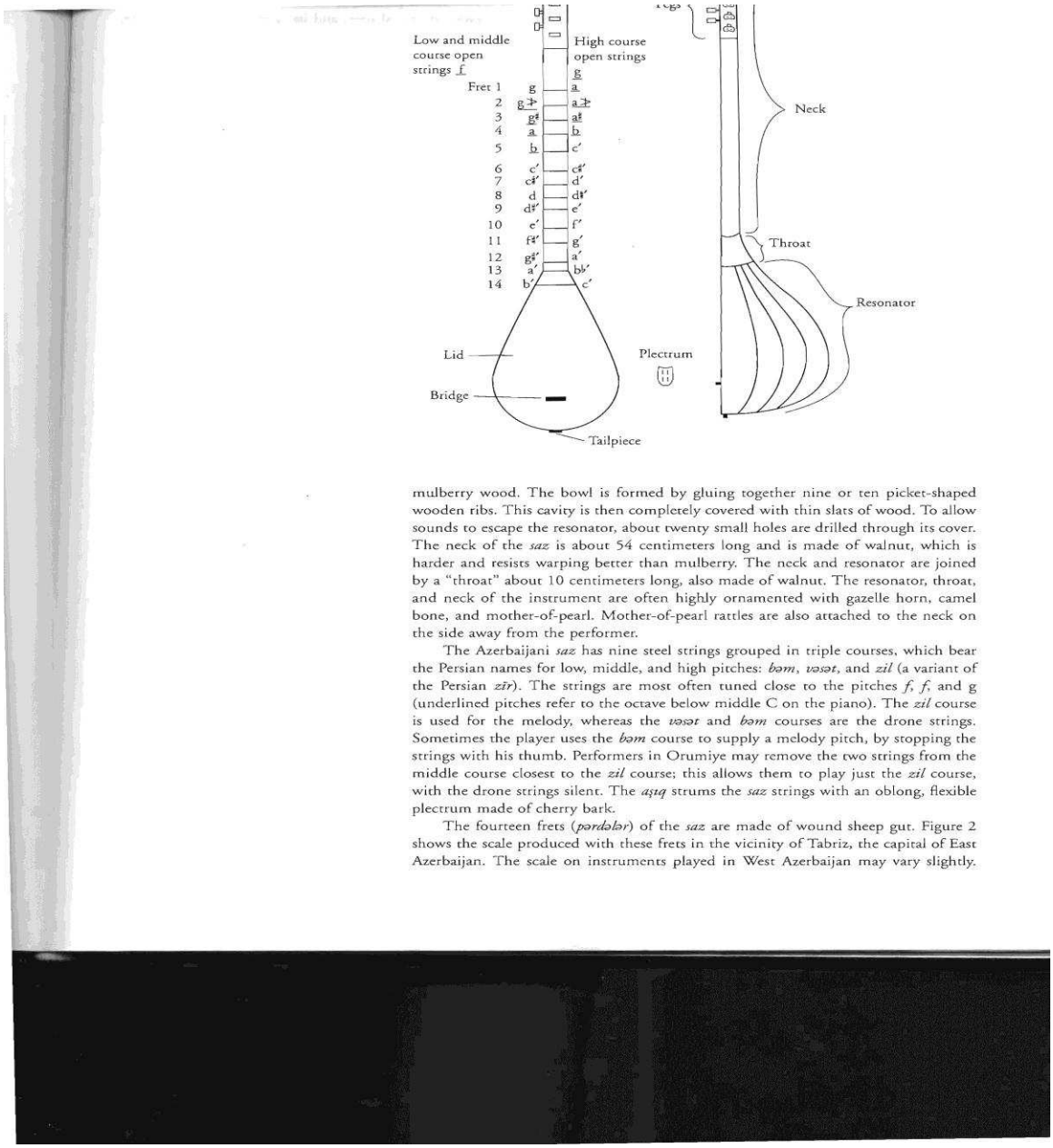


FIGURE 5 Scales of (a) the Azerbaijani *tar* and seven *muğam*, showing the locations of important branches (*şöbeler*): (b) *rast*, with five *şöbeler*; (c) *şur*, with six *şöbeler*; (d) *xaric-segah*, with three *şöbeler*; (e) *çahargah*, with four *şöbeler*; (f) *bayatı şiraz*, with four *şöbeler*; (g) *humayun* and *şuştər*, with three *şöbeler*



mulberry wood. The bowl is formed by gluing together nine or ten picket-shaped wooden ribs. This cavity is then completely covered with thin slats of wood. To allow sounds to escape the resonator, about twenty small holes are drilled through its cover. The neck of the *saz* is about 54 centimeters long and is made of walnut, which is harder and resists warping better than mulberry. The neck and resonator are joined by a "throat" about 10 centimeters long, also made of walnut. The resonator, throat, and neck of the instrument are often highly ornamented with gazelle horn, camel bone, and mother-of-pearl. Mother-of-pearl rattles are also attached to the neck on the side away from the performer.

The Azerbaijani *saz* has nine steel strings grouped in triple courses, which bear the Persian names for low, middle, and high pitches: *bəm*, *vəsət*, and *zil* (a variant of the Persian *zīr*). The strings are most often tuned close to the pitches *f*, *f*, and g (underlined pitches refer to the octave below middle C on the piano). The *zil* course is used for the melody, whereas the *vəsət* and *bəm* courses are the drone strings. Sometimes the player uses the *bəm* course to supply a melody pitch, by stopping the strings with his thumb. Performers in Orumiye may remove the two strings from the middle course closest to the *zil* course; this allows them to play just the *zil* course, with the drone strings silent. The *aşıq* strums the *saz* strings with an oblong, flexible plectrum made of cherry bark.

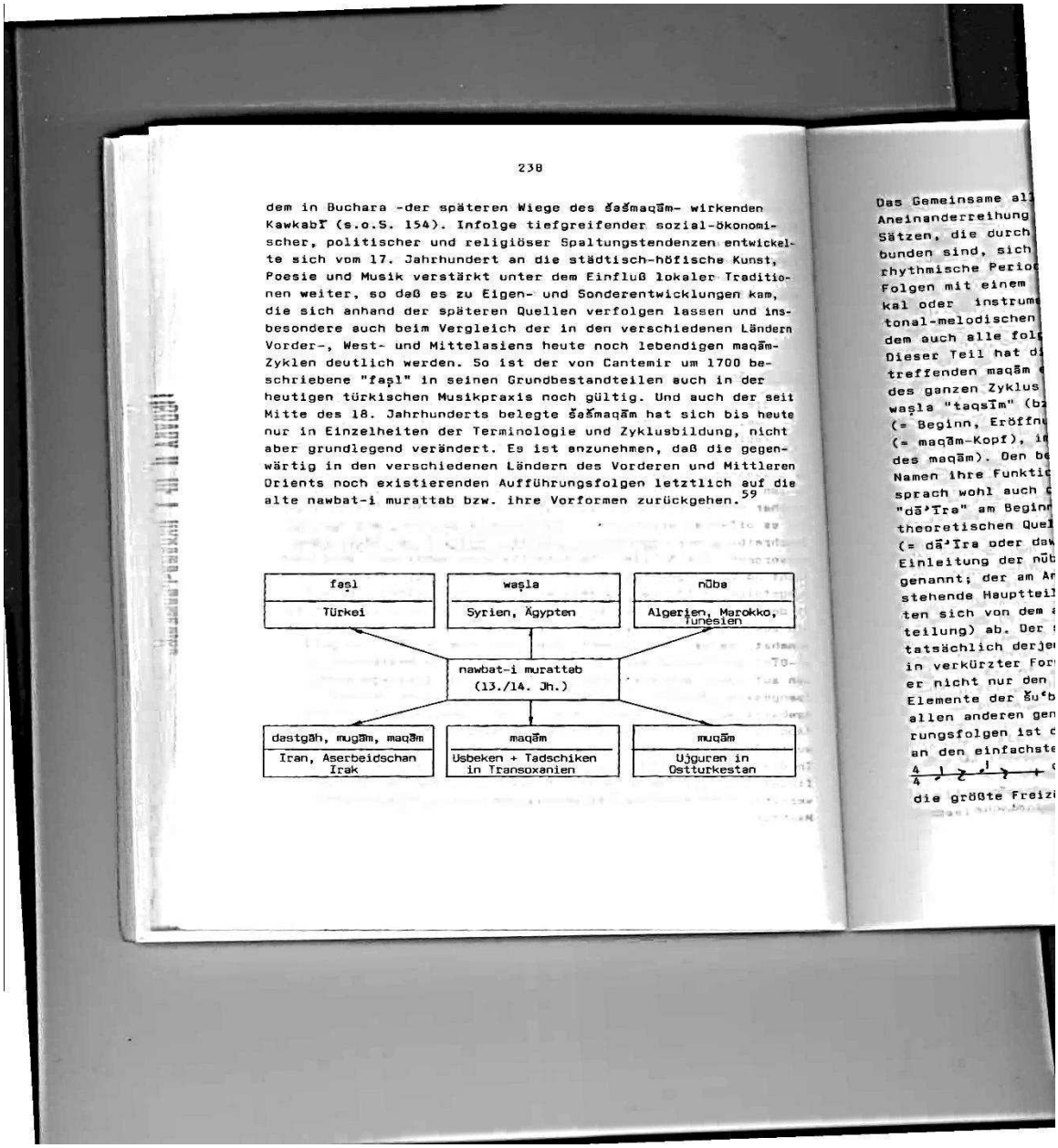
The fourteen frets (*pərdələr*) of the *saz* are made of wound sheep gut. Figure 2 shows the scale produced with these frets in the vicinity of Tabriz, the capital of East Azerbaijan. The scale on instruments played in West Azerbaijan may vary slightly.

(Charlotte Albright, The Asiq and his Music in Northwest Iran. Garland, p. 847)

Uzbek/Tajik shash maqam

Angelika Jung agrees that the fundamental influence on Uzbek and Tajiki music is from Arabian, Persian Sassanid, and Turkish music. (Jung p. 62) Azerbaijan can not be

discounted, however, since it was Azerbaijani musician al-Maraghi who brought the maqam to Central Asia through Timur.



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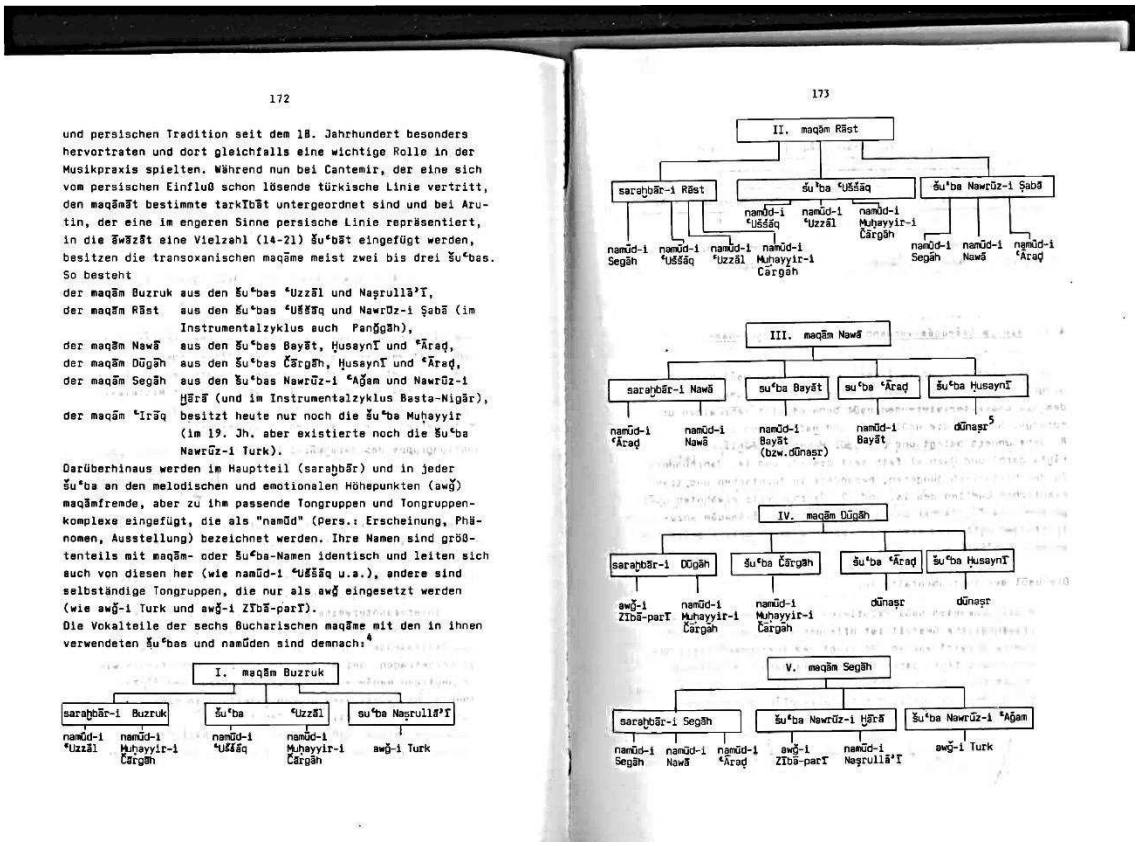
dem in Buchara -der späteren Wiege des šašmaqām- wirkenden Kawkabī (s.o.S. 154). Infolge tiefgreifender sozial-ökonomischer, politischer und religiöser Spaltungstendenzen entwickelte sich vom 17. Jahrhundert an die städtisch-höfische Kunst, Poesie und Musik verstärkt unter dem Einfluß lokaler Traditionen weiter, so daß es zu Eigen- und Sonderentwicklungen kam, die sich anhand der späteren Quellen verfolgen lassen und insbesondere auch beim Vergleich der in den verschiedenen Ländern Vorder-, West- und Mittelasiens heute noch lebendigen maqām-Zyklen deutlich werden. So ist der von Cantemir um 1700 beschriebene "faṣl" in seinen Grundbestandteilen auch in der heutigen türkischen Musikpraxis noch gültig. Und auch der seit Mitte des 18. Jahrhunderts belegte šašmaqām hat sich bis heute nur in Einzelheiten der Terminologie und Zyklusbildung, nicht aber grundlegend verändert. Es ist anzunehmen, daß die gegenwärtig in den verschiedenen Ländern des Vorderen und Mittleren Orients noch existierenden Aufführungsfolgen letztlich auf die alte nawbat-i murattab bzw. ihre Vorformen zurückgehen.[59]

This graph shows the interrelations of the 13th to 14th century of the nawbat-I murattab, a predecessor to the shash maqam and the dastgah, that was a suite form of four to five movements, but that also was related to music of Uzbekistan as well as Turkey, North Africa, and Persia. (Jung p. 238) Although there were many middle ages music theorists,

Ibn Sina, Kai Ka'us, al-Husayni, and al-Kindi, and al-Farabi, it is by far the influence of al-Maraghi who brought the teachings of Safi al-Din to Central Asia, thus laying the foundations for the shash maqam.

The shash maqam is a fixed repertoire, with very little improvisation, and is essentially a vast suite of six cycles: Buzrak, Rast, Nawa, Dugah, Segah, and Iraq.



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und persischen Tradition seit dem 18. Jahrhundert besonders hervortraten und dort gleichfalls eine wichtige Rolle in der Musikpraxis spielten. Während nun bei Cantemir, der eine sich vom persischen Einfluß schon lösende türkische Linie vertritt, den maqāmāt bestimmte tarkībāt untergeordnet sind und bei Arutin, der eine im engeren Sinne persische Linie repräsentiert, in die āwāzāt eine Vielzahl (14-21) šu'bāt eingefügt werden, besitzen die transoxanischen maqāme meist zwei bis drei šu'bas. So besteht

der maqām Buzruk aus den šu'bas 'Uzzāl und Naṣrullā'ī,
der maqām Rāst aus den šu'bas 'Uššāq und Nawrūz-i Ṣabā (im Instrumentalzyklus auch Panǧgāh),
der maqām Nawā aus den šu'bas Bayāt, Ḥusaynī und 'Irāq,
der maqām Dūgāh aus den šu'bas Čārgāh, Ḥusaynī und 'Irāq,
der maqām Segāh aus den šu'bas Nawrūz-i 'Aǧam und Nawrūz-i Ḫārā (und im Instrumentalzyklus Basta-Nigār),
der maqām 'Irāq besitzt heute nur noch die šu'ba Muḫayyir (im 19. Jh. aber existierte noch die šu'ba Nawrūz-i Turk).

Darüberhinaus werden im Hauptteil (saraḫbār) und in jeder šu'ba an den melodischen und emotionalen Höhepunkten (awǧ) maqāmfremde, aber zu ihm passende Tongruppen und Tongruppenkomplexe eingefügt, die als "namūd" (Pers.: Erscheinung, Phänomen, Ausstellung) bezeichnet werden. Ihre Namen sind größtenteils mit maqām- oder šu'ba-Namen identisch und leiten sich auch von diesen her (wie namūd-i 'Uššāq u.a.), andere sind selbständige Tongruppen, die nur als awǧ eingesetzt werden (wie awǧ-i Turk und awǧ-i Zībā-parī).
Die Vokalteile der sechs Bucharischen maqāme mit den in ihnen verwendeten šu'bas und namūden sind demnach:[4]

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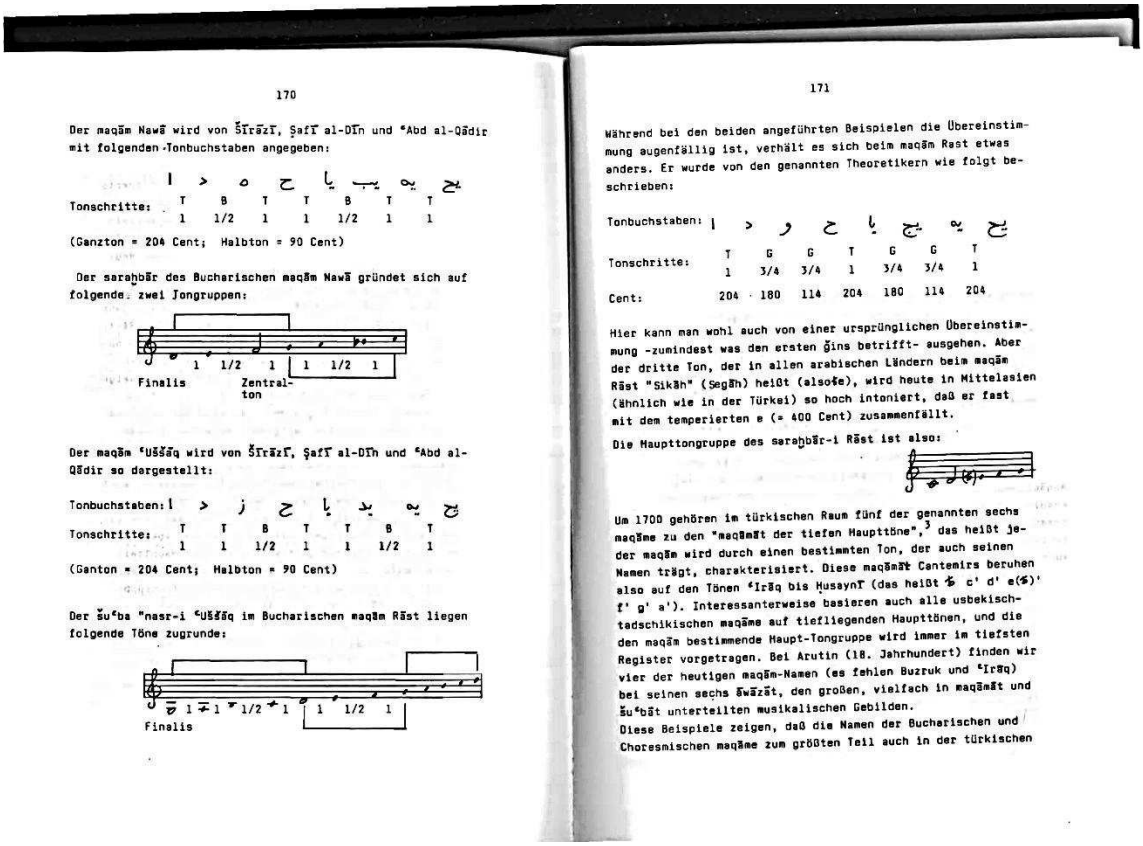
(Jung, pp. 172-73)

There is an instrumental section and a vocal section(s) called *shu'be*, each with a total of 25 genres. *Shu'be* comes straight from Persian music and has structural divisions by tessitura and begins with the daramud, just as in the dastgah. There is an ascent to the awj, as in the dastgah, and there is a unifying device called a namud, that creates a sense of cohesion throughout the cycle. The usul and aruz, are prosodic tools for meter in poetry, however, they both lie outside the scope of this paper. (Levin/Sultanova)



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Der maqām Nawā wird von Šīrāzī, Ṣafī al-Dīn und ʿAbd al-Qādir mit folgenden Tonbuchstaben angegeben:

Tonschritte: T B T T B T T
1 1/2 1 1 1/2 1 1

(Ganzton = 204 Cent; Halbton = 90 Cent)

Der sarahbār des Bucharischen maqām Nawā gründet sich auf folgende zwei Tongruppen:

1 1/2 1 1 1/2 1

Finalis Zentralton

Der maqām ʿUššāq wird von Šīrāzī, Ṣafī al-Dīn und ʿAbd al-Qādir so dargestellt:

Tonschritte: T T B T T B T
1 1 1/2 1 1 1/2 1

(Ganton = 204 Cent; Halbton = 90 Cent)

Der šuʿba "nasr-i ʿUššāq im Bucharischen maqām Rāst liegen folgende Töne zugrunde:

1 1/2 1 1 1/2 1

Finalis

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Während bei den beiden angeführten Beispielen die Übereinstimmung augenfällig ist, verhält es sich beim maqām Rast etwas anders. Er wurde von den genannten Theoretikern wie folgt beschrieben:

Tonschritte: T G G T G G T
1 3/4 3/4 1 3/4 3/4 1

Cent: 204 180 114 204 180 114 204

Hier kann man wohl auch von einer ursprünglichen Übereinstimmung -zumindest was den ersten ǧins betrifft- ausgehen. Aber der dritte Ton, der in allen arabischen Ländern beim maqām Rāst "Sikāh" (Segāh) heißt (also e), wird heute in Mittelasien (ähnlich wie in der Türkei) so hoch intoniert, daß er fast mit dem temperierten e (= 400 Cent) zusammenfällt.

Die Haupttongruppe des sarahbār-i Rāst ist also:

Um 1700 gehören im türkischen Raum fünf der genannten sechs maqāme zu den "maqāmāt der tiefen Haupttöne",[3] das heißt jeder maqām wird durch einen bestimmten Ton, der auch seinen Namen trägt, charakterisiert. Diese maqāmāt Cantemirs beruhen also auf den Tönen ʿIrāq bis Ḥusaynī (das heißt c' d' e(♯)' f' g' a'). Interessanterweise basieren auch alle usbekischtadschikischen maqāme auf tiefliegenden Haupttönen, und die den maqām bestimmende Haupt-Tongruppe wird immer im tiefsten Register vorgetragen. Bei Arutin (18. Jahrhundert) finden wir vier der heutigen maqām-Namen (es fehlen Buzruk und ʿIrāq) bei seinen sechs Šwāzāt, den großen, vielfach in maqāmāt und šuʿbāt unterteilten musikalischen Gebilden.
Diese Beispiele zeigen, daß die Namen der Bucharischen und Choresmischen maqāme zum größten Teil auch in der türkischen

As with the Azerbaijani and Turkish influence, Uzbek scales show the use of the comma system from Safi-al Din's Systematist theory. The scale (shown above) shows a Bukharan maqam section called sarahbar with two tetrachords using 204 cent whole tones and 90 cent limmas. (Jung p. 170) The maqam section segah, from the above right, reveals classic microtonal intervals all too similar to what has been explored in great detail: from a 204 cent whole tone, to a 180 cent minor whole tone, 114 cent apotome, a 204 cent whole tone, another minor whole tone, an apotome, and a final whole tone. All intervals are directly related to Pythagorean tuning, which were initially brought to the region by al-Maraghi five centuries ago, and are still employed today, despite the Arabic switch to the quartertone system in the 20th century.

FIGURE 1 *Shash maqām*: contents and order. The names of the six *maqām* suites appear horizontally at the top; the left column lists the main genres of instrumental pieces and vocal songs in each suite, divided into their three formal units: instrumental section, first group of *shu'be*, second group of *shu'be*. (*Shu'be* 'branch' in Arabic here means a piece or musical item.)

Notes: Each intersection of a row and column represents an individual piece. The name of the piece is formed by linking the name of a metric-rhythmic genre with the name of a melodic type, for example, *Tasnif-i Buzruk* (row 1, column 1).

An asterisk indicates that the name of the melodic type is the same as that of the *maqām* at the top of the column. Each *maqām* cycle, however, includes pieces that exemplify one or more subsidiary melodic types, and the names of these melodic types are entered in the table. For example, the metric-rhythmic genre *talqīn* is represented in the *buzruk* suite not by melodic type *buzruk* itself, but by *uzzāl*; thus, *Talqin-i Uzzal*.

Instrumental Section

	Maqâm					
Genre	*Buzrak*	*Râst*	*Nawâ*	*Dugâh*	*Segâh*	*Irâq*
Tasnif	*	*	*	*	*	*
Tarje	*		*	*	*	*
Gardûn	*	*	*	*		
Mukhammas	* Nasrullâ-î	* Panjgâh Ushshâq	* Bayât Huseynî	* Chârgâh Hâji Hâja Châr Sarkhâna	* Mirzâ Hakîm Ajâm	*
Saqîl	Sultan Islimî	Vazmin Râk-Râk	*	Ashkullâ	Bestenegâr	* (2) Kalân

Vocal Section: First Group of *Shu'be*

Sarakhbâr	*	*	*	*	*	*
Tarâna	6	4	2	6	6	6
Talqîn	Uzzâl	Ushshâq	Bayât	Chârgâh	*	
Tarâna	*	*	*	*	*	
Mukhayar						*
Nasr	Uzzâl	Ushshâq	Bayât	Chârgâh		
Ufâr	Uzzâl	Ushshâq	Bayât	Chârgâh	*	*

Vocal Section: Second Group of *Shu'be*

1st subsuite	Mûgûlcha-i Buzurk	Sowt-i Ushshâq	Sowt-i Nawâ	Sowt-i Chârgâh	Mûgulcha-i Segâh	(NONE)
Sowt		*	*	*	*	
Mûgulcha	*				*	
Talqîncha	*	*	*	*	*	
Chapandaz		*	*			
Qashqarcha	*	*	*	*	*	
Sâqînâma	*	*	*	*	*	
Ufâr	*	*	*	*	*	
2nd subsuite	Sowt-i Sarvinâz	Sowt-i Sabâ	Mûgulchâ-i Nawâ			
Mûgulcha	*	*	*			
Sowt	*	*				
Talqîncha	*	*	*	Qalindâr-i Dugâh		
Qashqarcha	*	*	*			
Sâqînâme	*	*	*			
Ufâr	*	*	*			
3rd subsuite	Irâq-i Bukhara	Sowt-i Kalân	Mustazâd-i Nawâ			
	Irâq					
Sowt		*				
Talqîncha	*	*	Mustazâd-i Nawâ Talqîncha-i Mustazâd-i Nawâ	Samandâr-i Dugâh		
Chapandâz	*	*				
Qashqarcha			*			
Sâqînâme	*	*	*			
Ufâr	*	*	*			
4th subsuite		Râk		Arâm-e-jân		

The Uzbek shashmaqam has become a fixed art form, which differs from some Azerbaijani mugham due to the latter's improvisatory qualities. On one hand, the mugham is improvisational in nature, while on the other it is fixed and follows exact rules. There is a tour sequence, or progression, through particular modes that require improvisation to a certain degree, but not in a Western Jazz sense, but in more of a strict foundation of particular modes and their concomitant rules. (Mugham wiki) The stricter form of this area seems to have traveled East into Bukhara and its shashmaqam.

With respect to harmony in Arabic music, Saed Muhssin (Saedmushssin.com), of the Arab Orchestra of San Francisco, states that Arabic music is monophonic, as a general rule, however, the Qanun, an Arabic zither, can be used in parallel motion or drone on pedal tones which reinforce a mode. Contrabass, also can be used to play key notes of a mode underneath the monophonic texture.

The strictness of the Uzbek shashmaqam vis a vis the freedom of Turgun Alimatov is also an interesting juxtaposition since they both encapsulate eachother's opposite. Although Alimatov plays the maqams, he is also improvising over them. Alimatov IS Uzbek, and therefore was brought up in the culture of strict shashmaqam rules, he, on the personal level, is freely improvising. Just as in the case of the split personality of the Azerbaijan Mugham, here is one individual who is breaking the rules, which then paves the way for another performer.

The shashmaqam appears to have become its own form towards the end of the 1700's and today has an Academy of Shashmaqam in Tajikistan. The 250 piece repertoire was then divided into six maqamat and then given poetry in both Uzbek and Tajik

languages which in itself became controversial in the early 20th century. (Music of Central Asia, Vol. 2 pp 10-11)

Conclusion

Turgun Alimatov was born in Tashkent in 1921 and his career began at the age of 18, playing on Uzbek radio and in musical theater. (Matyakubov) Turgun has always striven to play his own music, except that his music is not his own: it is primarily taken from shash maqam: segah, and nawa, and buzruk. Alimatov also is a master musician who can play the dutar, tanbur, and the sato, all with equal facility. But what makes Alimatov highly unique is the fact that he hears the minutiae of the microtonal intervals and that they are "built in" to him, over years and years of systematic use.

Turgun says: "a musician must first tune himself" as he spends upwards of 10 minutes on stage tuning his instrument. Tuning (saz) is a statement of his philosophical musical ideas. (Matykubov p 62) Alimatov seems convinced that each person has his own tuning, or vibration, and that when he plays for them, he cures them. This type of thinking is so opposite to Western thinking that it is difficult to find any parallels.

There is a cultural reason for this type of music, which is monophonic, and rhythmically complex, and has microtonal pitches that lie in the cracks of Western 12 tone equal temperament. European/American music is less complicated in terms of tuning and rhythm, but has advanced in terms of simultaneous activity, otherwise known as polyphony. Since middle eastern and Central Asian society has established such a

personal relationship with the “tone,” or the tuning, it seems sacrilegious to ask the question concerning polyphony. One person stated that it would not sound very pleasant. He was also Arab and a Muslim.

This author is currently seeking an alternative to the quasi scientific quest for alternate tunings for modern American music for the 21st century. In this author’s opinion, the complicated mathematical treatises put forth by many microtonal researchers are off-putting, due to a pseudo-scientific display of academic snobbery that appears to have nothing to do with music composition. It seems as if the soul had been sucked right out of it-- so a quest for a warmer microtonal attitude, or disposition, was sought and found, by the introduction of high art from another continent. Unfortunately, the geo-political climate is presently hostile toward the Islamic region at large.

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